1997 Biennial Energy Report

Our Energy Future:
At a Crossroads

WASHINGTON STATE
COMMUNITY, TRADE AND
ECONOMIC DEVELOPMENT
Building Foundations for the Future

1997 Biennial Energy Report

Our Energy Future:
At a Crossroads

WASHINGTON STATE COMMUNITY, TRADE AND ECONOMIC DEVELOPMENT
Building Foundations for the Future

Document # P530-001-December 1996

This report can be made available in another format for people with disabilities. Please call (360) 956-2096. TDD users call (360) 956-2218.

Printed on recycled paper.

925 Plum Street, S.E., Bldg. #4
P.O. Box 43173
Olympia, Washington 98504-3173

Message from the Director

I am pleased to submit the 1997 Biennial Report for energy, a field in which we are likely to witness major policy initiatives at the state and federal level this year. In this report, the Department of Community, Trade and Economic Development (CTED) provides you with information and background on the most pressing energy issues affecting the state of Washington. We focus in particular on those areas most likely to be the subjects of legislative action in the 1997 session. This will not exhaust the list of potentially important issues, but it should provide an introduction to the hottest topics.

Two crucial state energy functions were transferred to CTED with the closure of the Washington State Energy Office on June 30, 1996. CTED's new Energy Service Area houses the Energy Policy Group and the Energy Facility Site Evaluation Council (EFSEC), with Mr. K.C. Golden as the Assistant Director. These energy functions complement CTED's other service areas, especially Growth Management, Housing, Local Development Assistance, and Trade and Economic Sectors. The addition of the Energy Service Area affirms the critical role that reliable, affordable, environmentally sound energy service plays in the development of our state. Energy is one area where the linkage between good economic policy and sound environmental policy is particularly compelling.

We welcome the opportunity to forge strong working partnerships with the other state entities that will be implementing important energy functions: the Washington State University Cooperative Extension Energy Program, the Department of General Administration, and the Department of Transportation. Washington's energy policy goals reinforce and are reinforced by the essential programmatic work of these other agencies.

The winds of change are resounding throughout the electric power and utility industry. As this report is being written, the Steering Committee of the Governor's Comprehensive Review of the Northwest Energy System is finishing its recommendations for far-reaching changes to our prized electric power system. While many of these changes are controversial, clearly the status quo is not one of our options for the future. Without concerted action by the Northwest states, we are likely to lose the benefits of the Columbia River System in a competitive wholesale power market that knows no state or regional bounds.

The economic and environmental significance of these changes in our power system can hardly be overstated. The natural and human-engineered productivity of the Columbia River System is one of this state's greatest assets. Through our own actions as a state, and in cooperation with the other Northwest states, we must agree on a set of policies that will sustain and enhance the value of this system for future generations of Northwesterners. Our low-cost power, Columbia Basin salmon runs, and the reliability of our power system hang in the balance.

We look forward to working with you as these exciting developments in the energy field unfold. If you have questions on the contents of this report or other energy matters, please contact K.C. Golden or other EFSEC or Energy Policy Staff listed in *Appendix G* of this report.

Mike Fitzgerald
Director

Contents

Executive Summary iii

Section

1: Transition of Washington's Energy Programs 1-1
The Closure of the Washington State Energy Office 1-1
Transfer of Energy Programs 1-1

2: The Electric Industry in Washington: Turmoil and Transition 2-1
Setting the Stage 2-1
The Structure of the Electric Energy Industry 2-2
- The Wholesale Industry 2-2
- The Retail Industry 2-2

An Industry in Transition 2-4
- Reduced Cost to Produce Power 2-4
- Increased Interest in Retail Choice 2-4

Issues for Washington's Legislators and Residents 2-6
- Stranded Costs 2-6
- Public Purposes and Electricity System 2-8
- Industry and Jobs 2-11
- Environmental Implications of Electric Industry Restructuring 2-12
- Tax Issues 2-14
- Comprehensive Review 2-14
- Jurisdictional Issues 2-14
- Transmission, Distribution, and Reliability 2-15

3: Petroleum - Increased Vulnerability to Price Shocks 3-1
Overview 3-1
U.S. Gasoline Demand at Record Levels 3-2
Tight Markets Cause Higher Gasoline Prices Throughout the 1996 Driving Season 3-3
U.S. Oil Imports Near 50 Percent of Total Supply 3-4
Lifting of Ban on Alaskan Oil Exports Not Expected to Have Much Effect 3-5
Proposed Pipeline Would Bring Refined Product to Eastern Washington 3-6

4: Energy Emergencies and Contingency Planning 4-1
Prevention and Response 4-1
Types of Emergencies 4-1
Response for Petroleum Shortages 4-3
Regional Electricity Shortages 4-3
Conclusions 4-4

5: Washington's Energy Strategy 5-1
Background 5-1
Governor's Executive Order 5-1
Interagency Working Group 5-1
Status of Energy Strategy Recommendations 5-3
Next Steps for the Energy Strategy 5-3

6: Siting and Regulating Major Energy Facilities 6-1
Background 6-1
Goals 6-1
Benefits 6-1
Services 6-2
Results 6-2
Challenges 6-3

Appendices

A. Summary of Utilities in Washington State with Market-Based Prices A-1
B. Comprehensive Review of the Northwest Energy System: Preamble and Summary of Recommendations to Governors B-1
C. Biographies of Comprehensive Review Steering Committee Members C-1
D. Energy strategy Recommendation Status as of April 1996 .... D-1
E. List of Acronyms and Abbreviations E-1
F. Glossary F-1
G. Energy Service Area Directory G-1

List of Figures

Section 2

Figure 1: More Than Half of Washington's Retail Power is Provided by Publicly Owned Utilities 2-2
Figure 2: Washington's Publicly Owned Utilities Rely Heavily on Bonneville 2-3
Figure 3: Washington's Privately Owned Utilities Have Diverse Power Resources 2-3
Figure 4: BPA's PF Rate is Currently Higher Than Market Prices 2-5

Section 3

Figure 1: Why are We Using so Much Gasoline 3-1
Figure 2: An End to Years of Fuel Efficiency Improvements 3-2
Figure 3: Gasoline is More Expensive in 1996, but Still Cheap by Historical Standards 3-3
Figure 4: U.S. Oil Imports Set to Exceed Levels of 1970s 3-4
Figure 5: Domestic Crude Prices Rise and Fall with World Prices 3-5

Section 4

Figure 1: Columbia River Runoff can Vary Substantially from Year to Year 4-4
Figure 2: Below Normal Water Storage a Result of Recent Droughts 4-4

Executive Summary

Energy is essential to Washington's economy, costing residents, businesses, and industries $8.5 billion per year. The 1997 Biennial Energy Report provides information and background on what the Washington Department of Community, Trade and Economic Development (CTED) Energy Service Area sees as the most pressing energy issues affecting Washington. The focus is on those areas most likely to be the subject of legislative action in the 1997 session. Foremost among these are the immense and rapid changes that are occurring in the electric power industry, both in Washington and throughout the nation. A number of areas such as natural gas, renewables, alternative fuels, global climate change, and specific energy programs being implemented in Washington are touched on in this report, but not dealt with extensively. The Energy Service Area continues to monitor these areas and assess how activities or a change in these fields affects the state.

SECTION 1 - TRANSITION OF WASHINGTON'S ENERGY PROGRAMS

With the legislated closure of the Washington State Energy Office on June 30, 1996, a number of important energy programs were transferred to other agencies. CTED now houses energy policy and energy facility siting functions; the Commute Trip Reduction Program was transferred to the Department of Transportation; General Administration received public sector energy efficiency programs; and Washington State University Cooperative Extension now operates programs related to commercial and industrial energy efficiency, energy-related software, Energy Ideas Clearinghouse and the energy library, telecommuting, energy education and training, manufactured housing, energy code support, and alternative fuels.

SECTION 2 - THE ELECTRIC INDUSTRY IN WASHINGTON: TURMOIL AND TRANSITION

The energy sector experiencing the most dramatic change in the 90's is the electric industry. Most of the energy issues legislators will face in the upcoming sessions are influenced by the introduction of competition in this industry, both on a wholesale and a retail level. Wholesale competition issues are characterized by jurisdictional issues and differences among private and publicly owned utilities. At the retail level, access to a choice of providers will present both opportunities for customers to customize services and may lower energy costs. Competition will also present challenges for some utilities and customers who may be unable to take full advantage of the market due to the need to pay for expensive existing resources and nuclear debt.

Issues that legislators may be facing in the upcoming two years include: ensuring fair treatment of stranded costs; providing for the continued support for public purposes; considering economic impacts of energy choices; balancing energy needs with environmental interests; considering tax impacts of a restructured industry; responding to recommendations coming forth from the Comprehensive Review of the Northwest Energy System; understanding and considering jurisdictional differences and limitations among public and private, and federal and state-jurisdictional matters; and fostering transmission and distribution reliability and efficiency.

SECTION 3 - PETROLEUM - INCREASED VULNERABILITY TO PRICE SHOCKS

Record demand for gasoline and declining domestic crude oil production leaves us more dependent than ever on imported oil, and more vulnerable than ever to oil price shocks. That vulnerability was demonstrated during the spring and summer of 1996, when tight supplies drove up the price of gasoline by 15-20 cents per gallon. Prices climbed higher and stayed high longer on the West Coast, due to problems in the California refining industry. Other recent developments of note include successful Congressional legislation to allow the export of Alaska North Slope crude oil, and the Olympic Pipeline Company's proposal to build a petroleum product pipeline across Snoqualmie Pass.

SECTION 4 - ENERGY EMERGENCIES AND CONTINGENCY PLANNING

Supply shortages or disruptions can ultimately affect every person and every economic sector in the state. The ability to anticipate supply shortages, and respond appropriately to supply disruptions can help mitigate the severity of emergencies. By statute, CTED is responsible for coordinating a response to petroleum and electricity shortages and for administering the Governor's energy emergency powers. CTED has been actively involved in a number of energy emergencies in the past year and will continue to update energy contingency plans during this biennium.

SECTION 5 - WASHINGTON'S ENERGY STRATEGY

Washington's Energy Strategy provides an organized framework to guide the state's energy decisions. Its recommendations rely on known cost-effective technologies, beginning with improved efficiency, renewable resources, and wise use of natural gas. The Energy Strategy provides the guidance for energy policy and programs in Washington, and, by executive order, is the policy framework for energy decisions made by state agencies. Through legislative action, CTED has the lead for implementing the Energy Strategy. With the extensive changes underway in the electric industry, the Energy Strategy will be reviewed and revised as necessary during this biennium.

SECTION 6 - SITING AND REGULATING MAJOR ENERGY FACILITIES

The Energy Facility Site Evaluation Council (EFSEC or Council) provides a "one-stop" siting process for major energy facilities in Washington. The Council also issues major environmental permits required by such facilities and serves as the regulator of the construction and on-going operations of the facilities. The siting process includes opportunities for public participation, a coordinated environmental review with federal agencies and formal administrative hearings on contested issues.

During the 1990s the Council has sited four power plants representing 2121 megawatts of capacity. It is currently reviewing the application of the Olympic Pipeline Company to construct a 227-mile petroleum product pipeline from Woodinville to Pasco, Washington.

APPENDICES

This report also includes several appendices with additional information and resources. These include: a summary of Washington utilities with market-based prices; the preamble and summary of the Comprehensive Review of the Northwest Energy System; biographies of Comprehensive Review Steering Committee members; the status of Energy Strategy recommendations; a list of energy-related acronyms; a glossary of often-used terms in the energy field; and a directory of contacts in CTED's Energy Service Area for additional information on specific energy topics.

Section 1: Transition of Washington's Energy Programs

I. THE CLOSURE OF THE WASHINGTON STATE ENERGY OFFICE

In December 1994, Gov. Mike Lowry released his legislative budget proposal. In that proposal, he reduced the number of employees in the Washington State Energy Office (WSEO) by two-thirds and asked for an evaluation of the role of state government in energy policy and delivery of energy programs and services. At the same time, WSEO faced significant cuts from a major funder, the Bonneville Power Administration, and the agency was tapering down from funds acquired through federal lawsuits against major petroleum companies.

The Governor's proposal, coupled with the downturn of other funding resources, launched WSEO into an in-depth examination of energy policy and programs. WSEO asked leaders in the energy community, private business, and government to help evaluate energy programs and services to determine what the state should provide and what others might. These leaders comprised the Energy Options Steering Committee. The Senate invited the members of the Energy Options Steering Committee to address the specific concerns of the Legislature and propose a recommendation for consideration. The Energy Options Steering Committee advised the state to remain actively engaged in energy-related matters and asked that a smaller, but independent energy agency remain.

In the end, the Legislature declined to maintain a cabinet-level energy agency, but it did recognize the continued importance of energy policy and programs, and the need for a thoughtful, deliberative process for distributing programs and closing WSEO. The date for agency closure was extended to June 30, 1996, and the Washington State Institute for Public Policy was directed to examine WSEO's functions and responsibilities and develop options for their future.

The management and staff of WSEO, as well as the Office of Financial Management, participated fully in the Institute's study, as did members of the Energy Options Steering Committee. Of the three options proposed by the study, the Legislature and the Governor preferred the option of preserving several programs in three state agencies, and agreed to the innovative proposal to move the bulk of the education, information, technical assistance, and training programs to the Washington State University Cooperative Extension[1]. The transition of all energy programs involved a 55 percent reduction in FTEs.

II. TRANSFER OF ENERGY PROGRAMS

The following changes and transitions became effective on July 1, 1996.

WASHINGTON STATE COMMUNITY, TRADE AND ECONOMIC DEVELOPMENT
Building Foundations for the Future

The following programs and 12.5 FTEs transferred to the *Washington State Department of Community, Trade and Economic Development*:

- Energy policy
- Energy Strategy
- Energy emergency and contingency planning
- Energy Facility Site Evaluation Council

Contact K.C. Golden, Assistant Director, Energy Service Area; (360) 956-2006.

The following energy programs and 50 FTEs transferred to the *Washington State University Cooperative Extension*:

- Commercial and industrial energy efficiency programs
- Energy education and training
- Public sector energy training and technical assistance
- Energy-related software including: WATTSUN, Heatmap ®, MotorMaster, MotorMaster + and BallastMaster
- Biomass, district heating, industrial motors
- Energy Ideas Clearinghouse & the energy library
- Telecommuting education, training and demonstration projects
- Washington State Residential and Commercial Energy Code support and training
- Alternative fuels programs

Contact Kristine Growdon, Unit Manager; (360) 956-2062.

Washington State Department of Transportation

The Commute Trip Reduction (CTR) Program task force responsibilities and seven staff transferred to the *Washington Department of Transportation.*

Contact Brian Lagerberg, CTR Program Coordinator; (360) 705-7878.

Washington State Department of General Administration

Programs related to energy efficiency in publicly owned facilities and institutions, the federal partnership Public Buildings Challenge, and four FTEs transferred to the *Washington State Department of General Administration*.

Contact Ray Anderson, Energy Program Manager; (360) 902-7260.

[1] See Laws of 1996, ch. 186.

Section 2:
The Electric Industry in Washington - Turmoil and Transition

I. SETTING THE STAGE

For most of our lives, the electric industry has been reliable, affordable, slow to change and relatively risk-free. We call our local utilities and they are willing and eager to provide us very reliable service. Costs are averaged among users of the same class so that we pay the same rate for our electricity as our neighbors, regardless of how long we have had service or how wisely we use electricity. Utilities earn either no profit (if publicly owned), or a profit set by state regulators. As part of their public service obligation, utilities make investments on our behalf that have low risk and relatively affordable costs. Thus, utilities have been treated almost as partners with government in ensuring that the very high social values of electricity can be delivered to citizens at an affordable cost and minimal environmental disruption.

But the rumbles of change have been heard for many years. Starting in the early ’70s, public and policymakers raised concerns over the seemingly unending growth in costly new power plants, together with environmental impacts that were unacceptable to many. Oil embargoes affecting oil-fired generating units, the Three Mile Island nuclear accident, heightened environmental concerns over air and water quality, and construction cost overruns all contributed to widespread dissatisfaction with the investments our utilities were making on our behalf. While economic growth continued, energy consumption leveled off, breaking the historic link between demand for energy and economic expansion.

To respond to these changes, federal and state laws were passed that required utilities, including the Bonneville Power Administration (Bonneville), to take a look at all energy options, including energy conservation, and acquire resources that had the lowest overall long-term cost. If this meant acquiring resources from independent power producers or conservation providers, utilities had to do so. Further, if the least cost solution was to terminate or mothball an existing project or plant, utilities were encouraged to do so.

The costs of past actions are still with us. Consumers pay an enormous premium to retire the debt associated with nuclear power plants, most of which were never finished or operated. The devastation to wild salmon wrought in large part by hydroelectric dams on the Columbia River is only now becoming apparent, and mitigation is extremely costly. One of the central and most controversial questions in electric industry restructuring is, “How should the costs of these past actions be paid, and by whom?

Today, the rumble of change has grown to a roar. In the 1995 Biennial Energy Report we had just begun to think about the implications of these changes. Now in 1997 the changes are upon us; indeed, they are happening so fast that they are difficult or impossible to track. In a word, the change is characterized by more competition.

Most of the issues legislators will face in the upcoming sessions have to do with competition. Competition can benefit Washington by reducing prices and improving efficiency and productivity. However, competition can produce both winners and losers. On the producing side, competition can force businesses into reduced earnings or even bankruptcy. On the consuming side, competition can mean that consumers with more bargaining power and more information will get lower costs while consumers without these advantages may face higher prices. Finally, competition can undermine the incentive to make long-term investments that minimize costs, protect the environment, and ensure reliability. The goal for Washington should be to structure competition so as to align the private interests of suppliers and consumers with the public interest in clean, affordable, equitable, and reliable energy system.

II. THE STRUCTURE OF THE ELECTRIC ENERGY INDUSTRY

To set the stage for recent developments, it may be useful to describe the basic landscape of the Washington electric industry as it exists today, and some of its unique features. To begin with, just as in other sectors, electric energy is sold on a wholesale and a retail basis. Each has its unique structural, statutory, and regulatory framework.

A. The Wholesale Industry

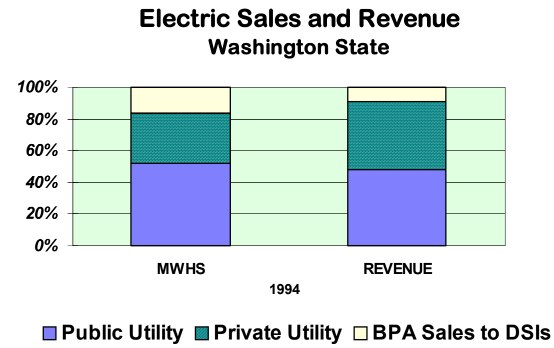
Independent generators, federal power administrations, and generating utilities sell wholesale power to electric utilities or other intermediaries, who then sell retail electricity to end users. Prices for wholesale power that is sold by privately owned utilities are regulated by the Federal Energy Regulatory Commission (FERC). Prices for wholesale power sold by independent power producers or publicly owned utilities are not generally regulated.

Wholesale power is transported over a high voltage transmission system, which is owned both by Bonneville and by private and public utilities. FERC regulates the pricing of transmission owned by private utilities.

The wholesale electric power business is an important element of Washington's economy. Washington-based electric generation provides well over half of the wholesale power sold in the Northwest.[1] As discussed further in this section, the wholesale industry has been undergoing major changes since the late 1970s, which are now beginning to accelerate. These changes are designed to make the wholesale power business fully competitive by the turn of the century.

B. The Retail Industry

Electric power is sold both by publicly owned and privately owned utilities. Washington is unusual in having a large percentage — a little more than half — of its retail electric energy provided by public or consumer-owned utilities. ***Figure 1*** shows that in 1994, public or consumer-owned power provided 52 percent of the retail power in Washington; Bonneville sold 16 percent of power consumed in Washington to the several large industrial customers termed the direct service industries; and private, or investor-owned utilities provided approximately 32 percent of the retail power consumed in Washington.



1994	MWHS	REVENUE
BPA Sales to DSIs	13,790,000	$318,860,000
Private Utility	27,580,000	$1,481,800,000
Public Utility	45,480,000	$1,648,800,000

Sources: BPA End-Use Research Section
BPA Genration and Power Sales Report

Figure 1. More Than Half of Washington's Retail Power is provided by Publicly Owned Utilities

As in the wholesale sector, public and private utilities get their power from a variety of sources. ***Figures 2*** and ***3*** show that there are distinct differences in the sources of power between publicly and privately owned utilities. The most notable difference is the percentage of power that publicly owned utilities obtain from Bonneville. This is largely due to the statutory rights that publicly owned utilities have for first and priority call on Bonneville, termed public preference.

In addition to these differences between private and public utilities, there are key structural differences. Privately owned utilities are regulated by the Washington Utilities and Transportation Commission. Publicly owned utilities are regulated by locally elected commissions in the case of public utility districts, or city councils in the case of municipal utilities members in the case of cooperatives. Government-owned utilities also have certain tax advantages, including exemption from property taxes[2] and income taxes. They are, however, subject to state and city public utility taxes. Additional differences between public and private utilities are discussed further in the section on jurisdictional issues in this chapter.

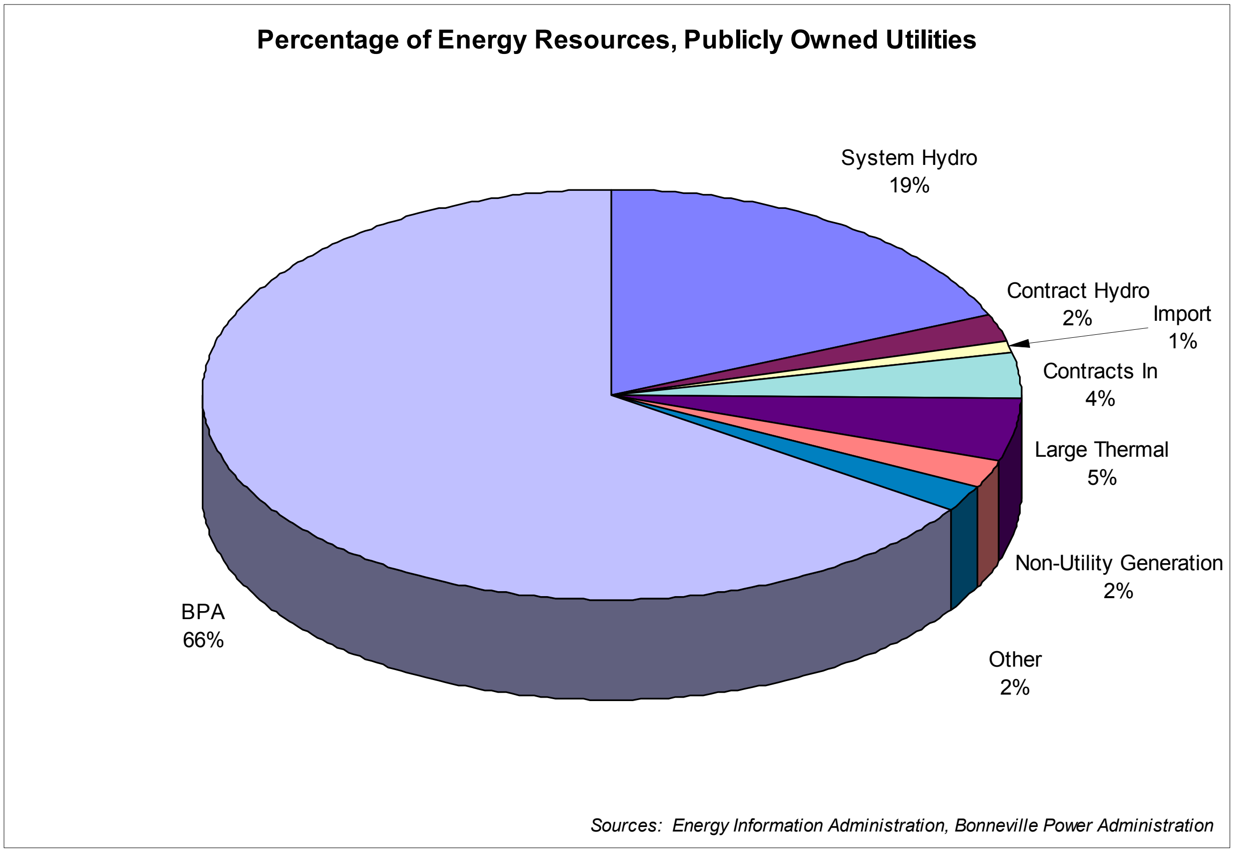


Figure 2. Washington's Publicly Owned Utilities Rely Heavily on Bonneville

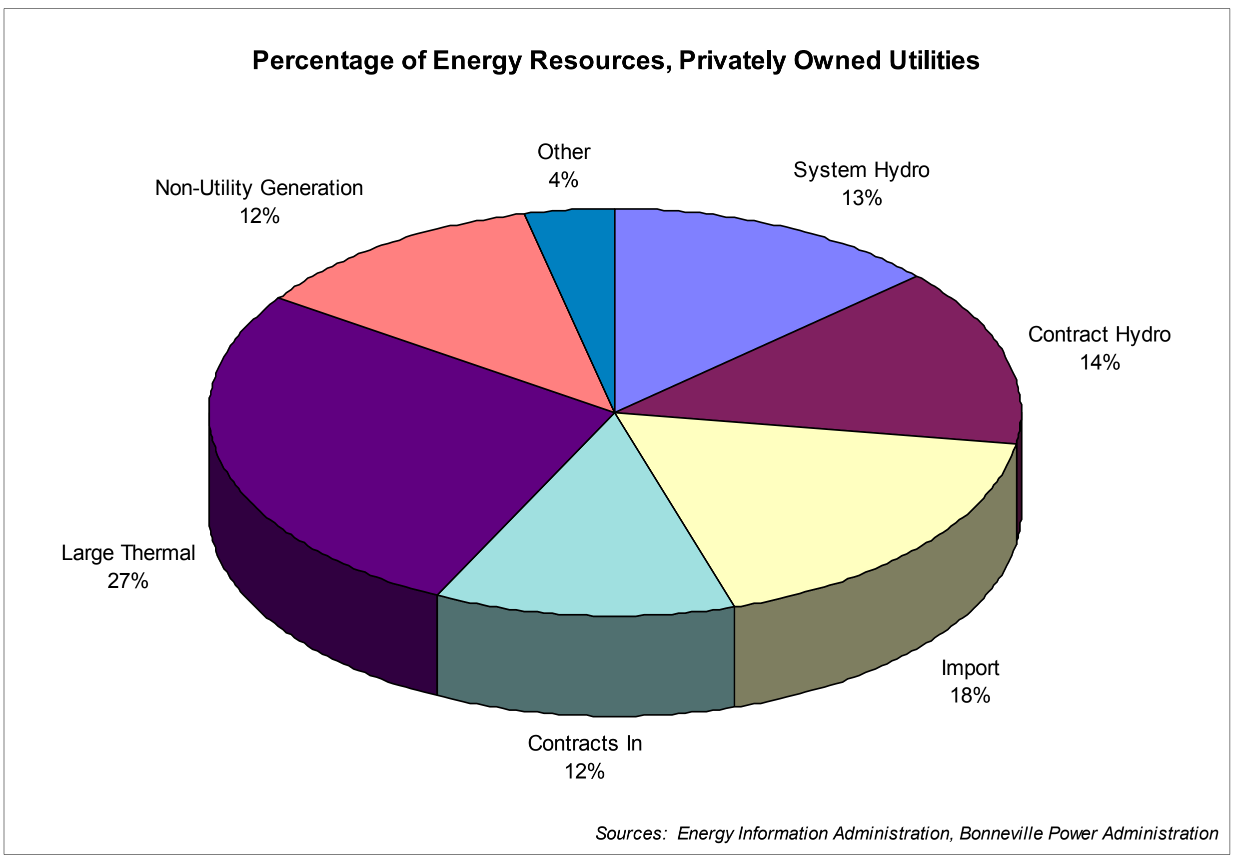


Figure 3. Washington's privately owned Utilities Have Diverse Power Resources

III. AN INDUSTRY IN TRANSITION

As we noted in the introduction to this chapter, changes are occurring in the electric industry, characterized generally by the introduction of more competition in both the wholesale and retail sectors. This section discusses some of the features and factors that have led to this increased competition.

A. Reduced Cost to Produce Power

The transition to competition is both the cause and effect of a trend toward declining costs of producing electric power. Deregulation of the wholesale natural gas market has led to sharply declining fuel prices and spurred technological advances in the design of new natural gas-fired power plants. This has made it profitable for utilities or power producers to run existing gas-fired generation more frequently and to build new inexpensive, efficient plants. These developments are not only displacing higher-cost electricity such as coal or nuclear, but have also increased electricity supplies. Some of the policies and laws that provided incentives for lowering costs include:

- The Public Utility Regulatory Policy Act of 1978, which required utilities to buy power from independent producers at a price equivalent to their own incremental generation cost;
- A series of initiatives to deregulate wholesale natural gas commodity and pipeline capacity transactions, culminating in FERC Order 636 in the early 1990s;
- The passage of the National Energy Policy Act of 1992, or EPACT, which required utilities to make their transmission systems available to all wholesale providers.[3] A summary of some pertinent provisions of EPACT was included in an appendix to the 1995 Biennial Report;
- FERC's Order 888, published in April 1996. Completing the transition to a competitive wholesale industry, FERC established rules of conduct that require utilities to separate their wholesale transmission from their wholesale generation functions. It also established the so-called Golden Rule for transmission — that is, utilities that own both generation and transmission must treat their own generation the same as others' generation for the purpose of transmission access and pricing.

Using Bonneville as a typical example, ***Figure 4*** shows the historic relationship between the cost of new power purchases and the cost of existing facilities, represented by the cost-based "PF (priority firm) rate". The solid line represents this historic and projected cost of Bonneville power. Dashed lines represent the costs of new generation. Past "eras" dominated by three generation alternatives — nuclear, coal, and natural gas — are separated by vertical bars. The future has the dashed line splitting in two to depict high and low estimates of the cost of electricity on the bulk market, which is the current alternative. Besides the fact that the cost of producing new power is declining, we see that we are in a period where new cost is slightly cheaper than historic cost. This trend is partly due to technological advances, but is mostly due to the fact that we are in a situation of excess power, combined with low fuel prices. This means that power can be priced at approximately the running cost of a plant, and does not include the capital cost of building a new facility. The implications of this phenomenon are discussed below in the section on stranded investment.

B. Increased Interest in Retail Choice

If there is any common characteristic of regulated industries in the United States over the past several decades, it is the trend towards increasing customer choice. In a number of industries the rationale for preserving a monopoly has been eroded or reconsidered. This occurred in the airline industry, in the telephone industry, in the *wholesale* natural gas and electric industry, and is now beginning to occur in the *retail* electric power industry. A nationwide push for more choices for retail customers is occurring. Several states are exploring or implementing retail access pilot programs. New Hampshire's pilot program is the furthest along, and preliminary information is available from it. California has passed legislation mandating retail competition. Internationally, countries such as Norway, Great Britain, New Zealand and Chile have recently created competitive electric industries or privatized previously government-owned power systems. It is important to recognize that competition will most likely focus on generation, or power services. Meters and wires will more likely remain monopoly services.

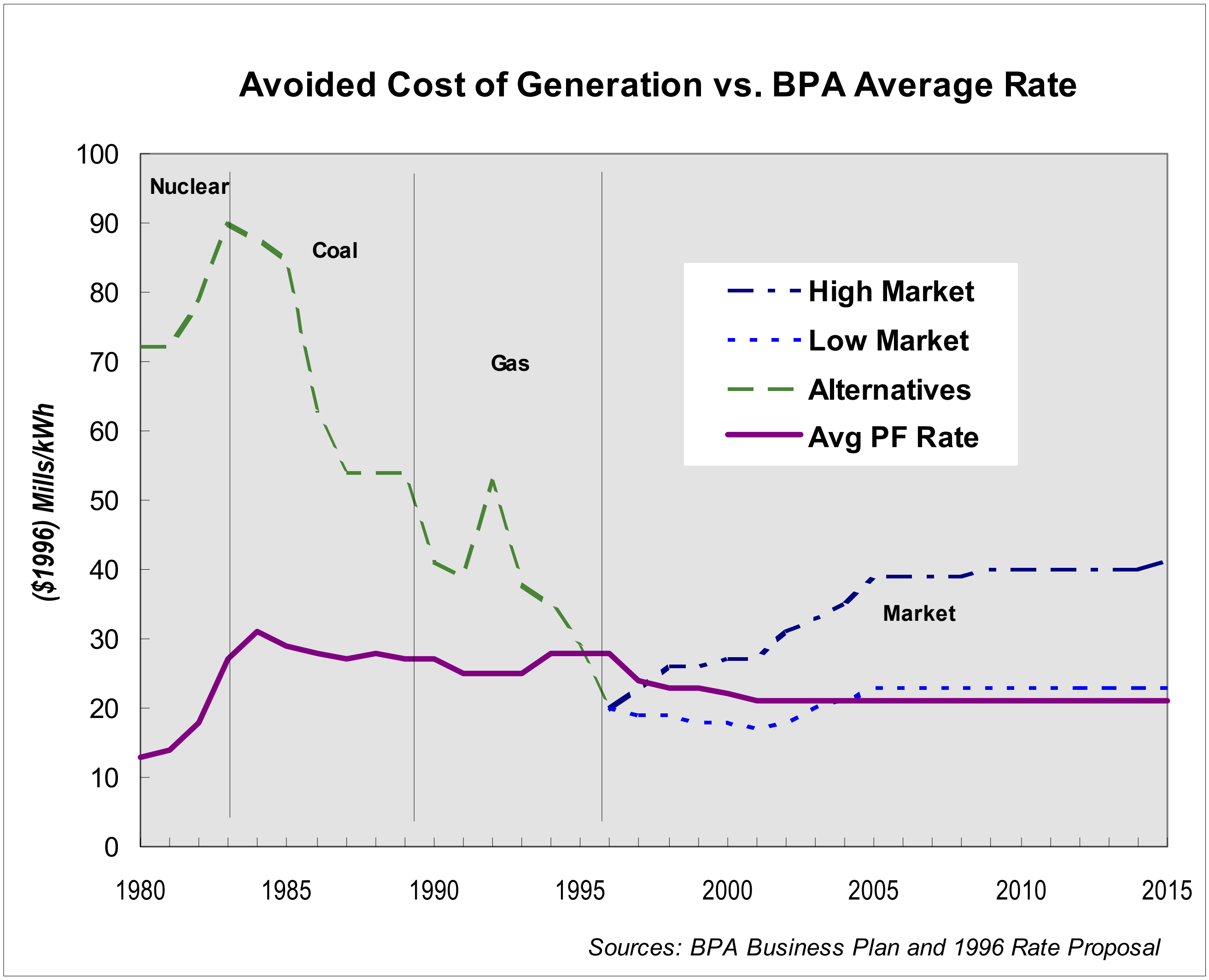


Figure 4. BPA's PF Rate is Currently Higher Than Market Prices

Washington is at or near the forefront of states experimenting with retail choice, because our statutes, unlike other states, already permit retail competition. As of the writing of this report (late 1996), at least ten retail utilities are experimenting with either full retail choice (where the customer buys energy directly from an independent provider or retail competitor) or "virtual" retail choice, where the utility sells power at market-based prices. About 600 average megawatts (aMW) of power is already being sold at market prices with another 600 aMW of load eligible but not yet under contract. This amounts to about 10 percent of Washington's retail load. So far, these market-based prices are only available to the largest industrial customers. Another 10 percent may soon be eligible for market-based prices or retail choice, if utilities follow through on plans to extend access to the commercial and residential classes. A summary of utilities with market-based pricing programs is included as ***Appendix A.***

One segment of retail users has taken advantage of limited retail competition for years — the direct service industries (DSIs), predominantly aluminum companies. They have had the opportunity to choose between their local provider and direct service from Bonneville. Their very large, flat loads (flat meaning they use a relatively consistent amount of power 24 hours a day) and low cost to serve them, make them attractive energy customers. Recently, the DSIs negotiated a contact with Bonneville that allows them direct access to the wholesale market for a portion of their load. The legality of these contracts has been challenged in court.

Increased retail choice will affect Washington's electric utilities, their customers, and possibly the environmental and economic health of the state. On the surface, these changes include mergers and acquisitions, possible privatization of the federal power authorities, and competition for customers within the electric utility industry. Perhaps less obvious is that utility restructuring may change how we acquire new resources; who provides energy to consumers; which regulations exist to protect consumers, our environment, and system reliability; and who is paying the bills. The following sections will explore some of the implications that retail choice may have on cost recovery, the environment, state law, tax revenues, and other important issues.

IV. ISSUES FOR WASHINGTON'S LEGISLATORS AND RESIDENTS

The previous pages have described Washington's electric industry and have introduced the notion of a transition to competition. We turn now to a series of sections that identify possible decisions that legislators may face over the next two years. These include stranded costs, public purposes, industry and jobs, the environment, tax issues, the comprehensive review of the Northwest energy industry, jurisdictional issues, and transmission. Many of these issues are too complex to cover in adequate depth here. ***Appendix G*** provides names and phone numbers for key contacts on these issues.

A. Stranded Costs

For the first time in years, the marginal, or incremental, cost of buying electricity in the marketplace is cheaper than the existing resource mix of most utilities. While this reduction in the cost of power and new plants is good news, it also presents a challenge. Utilities still have not finished paying for the large, expensive power plants (mostly coal and nuclear) they had committed to in the 1970s and '80s. The result is that many utilities are committed — either through ownership or contractual obligations — to relatively high cost power that is much less valuable than it used to be. (Notable exceptions are public utilities in central Washington that own large supplies of low-cost hydropower.) Additionally, utilities' well-informed, larger customers are seeking access to low-cost market power.

The dilemma of how to pay for existing power when new power is more attractive is termed the "stranded cost" problem. Stranded costs refer to the utility's unavoidable generation costs that cannot be fully recovered at market prices. By definition, stranded costs have to be paid for by *someone.* The question is: who?

Intense debate is occurring nationwide on the answer to this question. Should stranded costs, as utilities claim, be paid by some or all ratepayers? Should the costs, as customers claim, be partly or wholly absorbed by the shareholders (if any)? Should the costs be paid by some combination of both?

The stranded cost problem is unique to industries that are undergoing deregulation. Traditional utility regulation has been premised on the "regulatory compact", under which monopoly utilities earn a fair rate of return on all prudently incurred costs in exchange for providing service to all customers at reasonable prices. In unregulated industries, by contrast, companies have no guarantees of earning a return and all the risks associated with business investment lie wholly with a company's owners. These risks include a lower than expected rate of return, delayed payback, and even bankruptcy. With the introduction of competition and the ending of the regulatory compact, utilities face a world that is far less certain than in the past. How the stranded cost issue is resolved will play a large role in determining which companies survive the transition to competition.

The stranded cost question has equity and cost implications. The equity issue relates to allocation of *past* costs. These costs were incurred under a "regulatory compact" in which utilities could legitimately expect that all their prudent costs would be passed along to captive customers. In return, utilities were obligated to serve customers upon request and to meet growth in demand as it occurred. Now that the rules are changing, how should the uneconomic portion of these costs be allocated? The equity issue reaches beyond shareholders to include concerns of equity among customer classes. One's perception of "equity" is likely to vary depending upon whether one is a high or low-cost utility, a shareholder, a competitor, or a customer. And within these groups there may be differences of opinion.

The cost issue relates to future stranded costs. Shareholders and lenders, who are now on notice that they may no longer have a fixed pool of customers, will likely demand a higher rate of return or interest rate for their investments. The increased cost of capital will partially offset the effect of competition-induced efficiencies.

How do stranded costs interact with retail choice? As large industrial customers of both private and public utilities in Washington successfully push for access to cheap market power, they leave behind a higher cost resource mix for the remaining “captive” or “core” customers to pay. This evokes two primary questions: “Who pays for these stranded costs?” and “Why don’t all customer classes get simultaneous access or sharing of the benefits?”

This same debate applies to Bonneville with regard to wholesale power transactions. The largest stranded cost in the region is the uneconomic portion of an $8 billion Washington Public Power Supply System debt that Bonneville is paying on behalf of the region. This amounts to a $550 million annual payment in principal and interest. The cost of fish recovery and support for irrigation projects is also considerable. Although Bonneville’s system without irrigation support, fish recovery, and nuclear power is one of the best bargains in the nation, including these costs has resulted in Bonneville’s inability to recover all of its costs and compete with the current market for wholesale power. This creates a stranded cost problem for Bonneville and the federal government and is driving many of the discussions within the Comprehensive Review, discussed further below.

--- Energy Issues: Centralia Coal Plant and Mine ---

One of the first electric utility issues to come before the legislature in the 1997 session will be proposed tax incentives for the Centralia power plant and mine. Cleanup of the plant's sulfur dioxide (SO_2) emissions, which are blamed for reducing visibility in Mt. Rainier National Park, has been the subject of intensive negotiations during the last year.

Participants in the "Collaborative Decision Making" (CDM) process reached agreement in September on a package of pollution controls which would ultimately reduce the plant's SO_2 emissions by 80-90 percent. The agreement, called the “CDM target solution” would require the installation of two limestone "scrubbers", the first in 2001 and the second in 2002. Because of the expense of the proposed solution, and because current market conditions have cut deeply into the plant's profitability, the agreement also calls for some $370 million in tax incentives. The incentives represent approximately three-quarters of the total cost of the proposed agreement.

Changes in the regulation of the electric power industry make this issue more complex. Under the existing regulatory regime, plant owners could implement the target solution with the reasonable certainty of being able to recover their costs in a rate case before the UTC. With the advent of competition, however, approval of the tax package provides no guarantee that the plant will continue to produce power at a competitive price. Wholesale power markets are extremely competitive, and the plant already operates at less than 50 percent capacity because of low power prices.

Should the plant become uncompetitive in the future due to market conditions or regulations to curb carbon dioxide emissions, investments in pollution control equipment may become “stranded.” Regulators and legislators may face the issue of whether the new investment of $500 million in pollution control equipment will be eligible for stranded cost recovery. Critics of the target solution have also questioned the wisdom of providing public support for continued operation of a coal-fired facility at a time of declining investment in energy efficiency and renewable resources.

The target solution for Centralia thus illustrates some of the changes that can be anticipated with competition. Better pollution control is clearly desirable and employment at the plant and the mine is important to the local economy. However, allocation of the costs of large capital investments in energy facilities will pose new questions in a competitive environment, where cost recovery is not guaranteed.

Other states already experimenting with retail choice have come up with a range of solutions. In California, ratepayers will pay 100 percent of direct stranded costs, although shareholders’ return is lowered. The stranded cost will be borne by all existing customers. New England utilities, on the other hand, have split stranded cost between ratepayers and shareholders. Washington, so far, has no uniform solution.

At the retail level in Washington, the stranded cost problem is currently facing public utility boards, councils and commissions for publicly owned utilities, and the Washington Utilities and Transportation Commission for investor-owned utilities. Because different utilities and jurisdictions are resolving the issue differently, questions could be raised by customers who may feel they are being treated unfairly compared with their neighbors. The lack of uniformity may create pressure to have a uniform solution legislated at the state level.

The issue of stranded costs is, by definition, an equity issue, since the question is not *whether* to pay the costs, but *who* should pay. The answer to this question will determine not only who is able to share the benefits of low market prices, but who is responsible for paying millions of dollars of stranded costs within the state.

B. Public Purposes and the Electricity System

Electricity is a service and commodity that is indispensable to the functions of a modern economy. Production of electricity also has enormous environmental implications because of its impact on water, land and air. In addition, resources needed to generate electricity (e.g., money, land, and water), also are needed for other purposes. Because of its unique status in our economy, and because of the unique regulatory framework under which it operates, electricity has borne with it a responsibility to achieve important public purposes. In the Pacific Northwest, these include support for irrigation, navigation, and recreational benefits of the hydroelectric system that are now a significant part of Washington's economy. Public purposes also include energy conservation, renewable resource development, support for low-income households, and rural development.

This section focuses on five public purpose topics:

1. Electric Energy Conservation
2. Electricity from Renewable Energy Resources
3. Support for Rural Communities
4. Irrigation
5. Support for Low-income Customers

Environmental issues, including fish and wildlife, are discussed later in this section, as are economic issues. While agreement on the importance of these benefits is widespread, there is a wide disparity of opinion on how to continue these benefits in a new competitive utility environment. The discussion that follows provides brief background on each topic, followed by a discussion of the range of options proposed to ensure their continued viability.

1. Electric Energy Conservation

Since the late 1970s, Washington and other northwest states have successfully operated some of the largest and most successful electricity conservation programs in the world. Least cost planning laws and rules[4] mandate that many utilities, as well as Bonneville, acquire lowest total cost resources to meet their customers' energy needs. Because conservation has long been one of the cheapest "resources" available to meet demand, conservation and other efficiency programs have been a critical component of all Washington utilities' resource acquisition programs. These programs have produced savings equivalent to the total electricity consumption of Seattle. Although annual investment by the region's investor-owned and public utilities has exceeded $300 million, this was still less than half the direct cost of building comparable new generating facilities.[5]

The declining cost of generation and the short-term West Coast electricity surplus now make electricity conservation less valuable than during the 1980s and early 1990s. Nonetheless, there is general agreement that a large amount of cost-effective conservation is still available in the Northwest. The Northwest Power Planning Council (NWPPC), in its draft 1996/97 power plan, estimates the 20-year regional conservation resource at more than 1,500 average megawatts or more than one and one-half the energy use of the City of Seattle.[6] The Council estimates that failure to capture these energy savings would cost the region $2.3 billion.

Discussions of electricity conservation at a regional level have revolved around the appropriate mechanisms for acquiring this resource. When a utility has the sole responsibility to acquire resources for its captive customers, it is appropriate for a utility to ensure that all cost-effective conservation is acquired. However, a restructured, more competitive retail industry makes direct, utility-by-utility acquisition of conservation more problematic. The cost of typical conservation measures consists almost entirely of large, up-front capital investments with little or no continuing "operation" cost. Alternative resources, such as gas turbines, have lower initial capital costs but include a stream of future operating and fuel costs. Due to existing financing and rate recovery structures, and concerns over competition, utilities may find these lower first-cost resources more attractive even if they are more costly over the long-term. As a result, they have already cut back substantially on their investments in energy efficiency.

Achievement of cost-effective energy efficiency has long been hindered by a variety of market barriers, including: inadequate information, lack of capital, "split incentives" between building owners and occupants, and others. As a result, even in regions with much higher electricity prices, cost-effective conservation opportunities are routinely missed. Consequently, consumers pay higher energy costs.

Over the past 15 years, policy-makers and utilities have undertaken a variety of strategies to overcome these market barriers and deliver cost-effective energy savings. These strategies range from improved energy codes and standards to rebates for efficient motors and appliances to consumer information programs, to name but a few. As a result of these strategies, the Northwest region has saved over 1000 average megawatts of power -- enough to meet the annual electricity demand of a city the size of Seattle -- at roughly half the cost of building new power facilities to meet the same need. These savings have been achieved with no reduction in the quality or quantity of energy services (heat, light, motor drive, etc.). Energy efficiency strategies have been designed to squeeze more work out of less energy, not to sacrifice comfort or convenience.

In the future, the market for energy efficiency services will continue to evolve. However, many market barriers are likely to persist. The Northwest Power Planning Council estimates that approximately one-third of the cost-effective conservation opportunities will be captured by market forces. The other two-thirds will require continuing investment to remove market barriers. A widely accepted guiding principle for these investments is that they should strive to improve the functioning of the private market for energy efficiency, rather than supplant that market. As a result, one of the most important energy efficiency strategies in the future will be "market transformation," a systematic effort to ensure that markets evolve to deliver more efficient products and services. This year, the Northwest Energy Efficiency Alliance was formed to facilitate these market transformation ventures.

As energy markets become more competitive, energy efficiency investments are at risk. In the future, the challenge will be to fund these investments in a *competitively neutral* manner. Because these investments deliver system-wide cost savings and environmental benefits, they should be funded in a way that does not disadvantage one energy provider relative to another. To respond to this challenge, Washington Water Power (WWP) uses a "system benefits charge" that applies to all users of its distribution system, whether they purchase power from WWP or another supplier. California has adopted this approach statewide as part of its landmark utility restructuring effort. The regional Comprehensive Review has proposed adoption of a statewide minimum standard for public purpose investments of three percent of electric service revenues. This standard, applied equitably, would ensure an adequate level of investment to capture cost-effective energy savings, without placing any one provider who makes such investments at a competitive disadvantage. The Comprehensive Review proposal would ensure maximum local control of the use of these funds, while establishing an effective standard that ensures an appropriate minimum level of investment without competitive bias.

2. Electricity from Renewable Resources

The Pacific Northwest's electric energy system was founded on renewable energy resources. More than 50 percent of Washington's electricity is generated by hydroelectric dams. However, the age of substantial new hydropower development is gone. Promising new renewable resources include solar, wind, and geothermal electricity generation. Renewables can offer substantial environmental benefits (minimal pollutant emissions, no greenhouse gases, etc.), and a greater diversity of supply options. Currently, for Washington, most electricity generated by renewable resources ranges from slightly to substantially more expensive than natural gas generation. However, in other parts of the country and around the globe, renewables may be a more cost-effective option, especially in remote or high cost areas. Some renewable electric technologies, such as solar electric pumping for stock watering in remote locations, are cost-effective today. Some renewables are also cost-effective in specific, direct (non-electric) application. These include geothermal district heating in parts of Eastern Washington. Washington has a substantial endowment of renewable resources, and a number of firms that specialize in renewable resource technologies.

Like energy efficiency, renewable resources face enormous market barriers. Many of the environmental advantages of renewables are not reflected in their price. And, while the cost of renewable resources has declined substantially in recent years, the cost of natural gas-fired power has dropped even more. In the short run, renewables are unlikely to fare well in wholesale market competition where price is generally the determining factor. However, the environmental benefits of renewables may be an attractive feature in retail competition. Also, because they produce no greenhouse gases, they may become increasingly desirable in as greenhouse emissions targets are developed and adopted internationally. As a result, some continued investment in bringing these resources to market is probably justified.

The regional Comprehensive Review recommends modest investments in the following three areas: renewable research and development; direct application of renewables, such as geothermal district heating and solar hot water; and renewable resource "market transformation," including financing packages and other measures to develop the market for renewables.

3. Support for Rural Communities

Because rural customers are more dispersed, it costs more to serve them than it does urban or suburban customers. However, the nation and state have long considered universal affordability of electricity to be an important public purpose. Therefore, rural utilities receive subsidies intended to average out the cost of electricity among rural and non-rural customers. These include so-called postage stamp rates for transmission, whereby all transmission purchasers pay the same rate regardless of the distance power must travel over transmission lines. They also include direct tax subsidies for low-density utilities. The development of rural cooperatives, with federal subsidies and encouragement, played a very large role in the economic recovery of rural Washington during the Depression. Many residents would not have been able to afford power without these subsidies and cost-averaging techniques. They have played a crucial role in the development of many rural Washington communities.

In a new, restructured electric industry, the concept of rural subsidies may be less resilient. Energy providers may not be attracted to sell power to remote, rural customers unless their full costs are recovered.

4. Irrigation

Among the many reasons for the development of the Columbia River dam system was to provide increased irrigation for eastern Washington agricultural development. Today more than seven million acres of land in the Columbia and Snake river basins are irrigated with nearly 14 million acre-feet of water removed from the rivers for this purpose. Irrigation is an important element in Washington's agricultural economy. Nevertheless, irrigation activities create costs to the hydroelectric generating system that include foregone power production (due to water withdrawal), energy use for irrigation pumping, and power sales payments for irrigation capital expenditures. There is substantial debate over the size of both the benefits and costs of irrigation.

In a restructured utility environment with a stronger emphasis on keeping cost low, irrigation issues are likely to have increased significance as part of the overall discussion of how the Columbia/Snake river system should be operated (see environmental section, below). One example involves tradeoffs among irrigation withdrawals, possible increases of in-river flow for fish enhancement, and decreases in power production.

5. Support for Low Income Customers

Approximately 15 percent of the households in Washington have incomes that are at 125 percent or less of the federal poverty level. Despite the region's low electricity costs, energy expenditures are significant for these households, especially during the winter months. Federal and state policy makers and utilities have long recognized these impacts on low-income customers and have developed a variety of weatherization and bill payment assistance programs. However, over the last 10 years there has been a substantial decline in the level of federal support for low-income programs. For example, federal energy assistance for low-income populations has declined from a peak of $2.4 billion in 1985 to $1.3 billion in 1995, despite inflation and a notable increase in the number of low-income households during that period.[7]

The restructuring of the electric industry is likely to present three challenges to low income populations:

- Will there be assurances that low income customers are not excluded from service for geographic or other economic reasons?
- Will there be funding for the weatherization of low-income residences?
- Who will provide energy assistance support?

As discussed above, electric industry restructuring is likely to lead to substantial changes in the structure and functions of customer service. Large industrial customers, with substantial market power, are likely to see declining rates and new services. Low-income households, with minimal market power, may be subject to loss of service, increasing rates, and consumer fraud.

Weatherization in low-income households involves the installation of a variety of conservation measures that improve the energy performance of the facility and decrease electricity bills. Energy assistance activities combine federal, state, and limited utility support to offset the expenses for electricity. These activities can include direct payments, special low-income rates, emergency assistance, percentage of income payment plans, and fuel funds. Federal support, the historic mainstay for energy assistance, has declined by more than half over the last 10 years while need continues to grow.

A more competitive electric power industry is likely to deliver some net benefits in the form of greater efficiency. However, it is not clear whether and how these benefits will flow through to small customers. Low-income customers, many of whom cannot afford even the most basic energy services, are particularly at risk. To ensure that low-income customers are not harmed by the introduction of competition, the regional Comprehensive Review proposed two strategies:

- Accelerate low-income weatherization activities to ensure that low-income consumers are literally and figuratively "insulated" against energy costs. In addition, these investments produce cost-effective savings for the energy system as a whole, as well as environmental benefits.

- A Universal Electric Service Fund to provide bill assistance for low-income consumers. Low-income customers who spend more than five percent of their incomes on electricity would be eligible. The fund could be supported by federal sources, state sources, or by charges on the electric distribution funds, much as universal service charges are now collected for access to telecommunications service.

C. Industry and Jobs

The state has a legitimate interest in promoting industries that create jobs and contribute to the economic well-being of the state and its residents. The electric industry is a major contributor to Washington's economy in two ways. The first is that electricity is more affordable to industries, businesses, and residents in Washington than almost anywhere else. This fact is of great importance to large, energy-intensive industries such as aluminum companies and steel smelters. It also plays a role, albeit less significant, in attracting new businesses, such as high-tech industries to the state.

Jobs are also created in building power plants, extracting fuel for generation, manufacturing energy equipment such as photovoltaic cells, and delivering energy efficiency. However, as a general rule, energy expenditures of all types create fewer jobs than other consumer expenditures.

Preserving employment at the Centralia coal mine is one of the justifications for the proposed tax breaks for pollution control equipment and coal extraction that will come before the Legislature this session. Coal extraction to fuel the plant employs several hundred skilled workers in the Centralia area, and pollution equipment will improve air quality beyond current levels. Owners of the project acknowledge that the plant would not be cost effective to operate without tax incentives. Legislators will be asked to balance the interest of supporting jobs against the value of allowing the plant to compete without state intervention.

D. Environmental Implications of Electric Industry Restructuring

Production of electricity has very significant environmental impacts. Electric power plants produce nearly two-thirds of nation's sulfur dioxide, one-third of the emissions of ozone precursor's nitric oxide and nitrogen oxide, and one-third of the carbon dioxide. With more than half of our electricity generated by hydroelectric facilities, Washington does not face the same set of environmental issues as much of the rest of the country. Nonetheless, while hydroelectric facilities make no contribution to air quality degradation, they raise a different but equally daunting set of environmental challenges.

The state's dams have contributed substantially to the rapidly declining populations of salmon in the Columbia River and its tributaries. In addition, we are not immune from site-specific air quality issues. The Centralia coal-fired power plant is the second largest sulfur dioxide emission source in the western United States. Finally, nearly all new supplies of electricity will come from natural-gas-fired combustion turbines — a cleaner energy source than existing generation technologies, but certainly not environmentally benign.

None of these issues is new. Previous editions of the Biennial Energy Report included discussion of all of these topics. The question we face today is: How is restructuring of the electric industry likely to influence the environmental situation in Washington? The simple answer is that we do not know with any certainty. We understand some of the major outlines of a restructured industry but have little insight on specific details.

For example, one outcome may see the replacement of older fossil-fuel plants contributing significant environmental impacts with more efficient and environmentally "friendly" natural gas turbines. Another possible outcome could be increased use of these older plants, less funding for energy efficiency (which decreases pollution emissions), and little or no agreement to continue funding for restoration of endangered salmon runs in the Columbia River basin. Still a third result might see construction of a number of new combustion turbines to supply out-of-state markets. Each of these situations would result in different environmental consequences. It does seem clear that competitive pressures will lead to efforts to cut expenditures for environmental mitigation activities, and that without policy initiatives to sustain long-term investments in environmentally beneficial conservation and renewable development, these investments could decline even more.

The rest of this section focuses on two specific areas of major environmental concern - anadromous fish preservation and enhancement, and greenhouse gas emissions and climate change.

1. Preservation and Enhancement of Columbia River System Fish

Salmon have long been a major component of the culture and economy of Washington and the Northwest. Native Americans have depended on salmon for food, economic livelihood, and cultural definition. Commercial fisheries are a major Northwest industry. Recreational fishing is a popular pastime and an economic mainstay for many. Yet the salmon population in the Columbia River system has experienced massive declines. Returning runs of salmon have fallen from more than 10 million fish during last the century to 550,000 in 1993, of which only 200,000 were from wild stock.[8] Many species of salmon are now listed as threatened or endangered under the provisions of the Endangered Species Act.

The 1995 Biennial Energy Report's section, *Controversy on the Columbia: the Future of Salmon*, described many of the reasons for this decline as well as the scientific and political controversies.

What new issues or information do we have since 1995, especially in light of the restructuring of the utility industry?

- The region continued its scientific investigation of the causes and solutions of anadromous fish decline. Probably the most notable result came from the Independent Scientific Review Group (ISG). Using a more ecosystem-based approach than previous studies, the ISG concluded that habitat degradation in estuaries, rivers, and oceans, was the main cause of the decline in salmon stock and that the only way to restore connected, viable habitats is to return the river to a "normative" state. This normative state would mean substantial changes in the operation of the river and accompanying decreases in power production.

- In November 1996, Congress agreed to provide financial assistance to Bonneville for some of the costs of fish mitigation. At the same time, Congress established a rather complicated temporary limit on Bonneville's fish mitigation costs of $435 million per year.[9]

- In addition to the fish assistance and cap, Congress also established a 180-day period for the Northwest Power Planning Council to "report to Congress regarding the most appropriate governance structure to allow more effective regional control over efforts to conserve and enhance anadromous and resident fish and wildlife within the Federal Columbia River Power System."[10] This group was only able to reach agreement on a limited governance enhancement: an executive order mandating greater coordination of efforts among federal agencies.

- There continues to be a high degree of concern among some parties about the costs of fish mitigation in an increasingly competitive utility environment. Environmental groups are concerned about how to generate sufficient political and economic wherewithal to operate the river systems to restore fish runs. Many utility and industrial groups are concerned that substantial alterations in river operation will limit power production and create future financial liabilities for salmon recovery.

What are the environmental implications of this situation? One extreme would be little or no modification of the operation of the river and its tributaries. This approach could lead to continuing decline in fisheries and a system governed by the provisions of the Endangered Species Act.

An alternative scenario is one in which the river operation undergoes major changes to return it to some semblance of its historical operating characteristics (normative river operation). Under these conditions, less firm power would be available, although total energy could increase, decrease, or remain the same, depending upon how and when hydroelectric dams are operated. Fisheries may or may not improve, and conflicts with other uses, such as irrigation, navigation, and recreation, could increase.

If the region is unable to reach some agreement on how the operations of the river should be governed and how to provide funding for mitigation activities, the fate of both the power system and wild salmon runs is greatly at risk.

2. Global Climate Change and Electricity Production

The 1995 *Biennial Energy Report* discussed some aspects of the global climate change issues and the sources of greenhouse gas emissions in Washington. Since the publication of that report, there is widespread scientific agreement that human production and use of energy resources and the consequent production of carbon dioxide and other greenhouse gases has begun to influence the world's climate.[11] Yet, as of 1996, carbon dioxide emissions are still totally unregulated in the U.S. This presents a significant financial risk associated with potential future regulation, particularly to utilities and consumers that rely heavily on fossil fuels. International negotiations are currently underway that may well result in binding greenhouse gas reduction targets.

Washington's overall contribution to greenhouse gas emissions from electric production is small compared to most states because of our large hydroelectric base. However, new additions to the electricity system, such as natural-gas fired sources, will be greenhouse gas contributors.

Restructuring of the electric industry by itself does not alter the fundamental issues of global climate change. However, if some of the recent projections of declining prices for electricity and increased use do occur as a result of restructuring, we can expect greenhouse gas emissions to increase substantially as well. While some economists have tried to make quantitative estimates of potential increases, with ranges as high as a 40 percent consumption increase within ten years, their estimates remain little more than conjecture. Without a better understanding of the level of usage and the mix of resources to meet demand, we cannot provide any quantitative estimates of emissions.

Greenhouse gas mitigation for new power plants is already a substantial issue in Oregon. The state is seriously considering modification of its siting laws to make such mitigation a primary siting criterion. The Washington legislature is likely to see more emphasis on greenhouse gas issues as part of its deliberations on state and regional energy issues.

An opportunity exists, in the transition to competition, to accelerate the introduction of new, cleaner technologies. Since we pay for energy in both economic and environmental currencies, competition should aim to ensure that we decrease costs in all currencies, rather than shifting costs between the economic and environmental categories.

E. Tax Issues

An additional issue for state legislators concerns tax treatment. For the most part, our tax structure collects retail sales taxes from sellers rather than purchasers. Thus, businesses are subject to the business and occupation (B&O) tax, which is based on a percentage of gross revenues. Industries in the "light and power business" — like utilities — are exempt from the B&O tax but must instead pay a public utility tax of approximately 3.62 percent based on gross revenues from retail sales.[12] Cities are also authorized to assess a public utility tax of up to six percent of gross revenues.[13]

Under the U.S. Constitution, neither federal entities (like Bonneville) nor out-of-state entities (like some power brokers and marketers) can be taxed by the state. This means that any activities that Bonneville or other out-of-state providers engage in are not subject to state or local taxation. The tax revenue implications of this fact are potentially substantial. If a substantial fraction of retail sales are made by out-of-state or federal entities, many millions of tax revenue dollars could be lost.

F. Comprehensive Review

The sections above highlight a number of questions that Washington's legislators and other decision-makers will face in the next two years. Fortunately, the Northwest region has already begun to work on these issues and may be in the position to provide some insights, data, and guidance to the state in the next several months. These discussions have taken place in a year-long forum that was given the title Comprehensive Review of the Northwest Energy System (Comprehensive Review.)

The Comprehensive Review was kicked off by the Northwest governors on January 4, 1996, by convening a steering committee of 20 distinguished members. Four of the members were *ex officio* representatives of the Northwest governors. A fifth *ex officio* member was designated by Bonneville. The remaining 15 members were chosen both to represent diverse interests in the electric energy industry, as well as for their individual prominence in the field. ***Appendix C*** contains biographies of the 20 members of the steering committee.

The Comprehensive Review Steering Committee investigated how to market federal power, how to structure the Northwest transmission system, what retail competition should look like, and how to deliver with public purposes.

A summary of the recommendations provided to the four governors on December 12, 1996, is included in ***Appendix B.***

G. Jurisdictional Issues

Several jurisdictional divisions complicate solving electric industry restructuring issues. These occur within the state, among states, and between the state and the federal government. As we move toward new industry structures, first, it is important to know who has oversight of various players in the industry. If jurisdiction varies among similar players (publics versus privates, utilities versus independent generators, etc.), it is more challenging to ensure that everyone is playing by the same rules. Where there are legitimate reasons for one set of players to be treated differently, these reasons should be clearly articulated and not a matter of jurisdictional happenstance.

Second, it is important for state legislators to understand the limits of their authority. As a rule, the state may not enact legislation that asserts jurisdiction or authority over an entity or activity that is already regulated at the federal level (such as wholesale energy transactions), or that is constitutionally exempt from state authority (such as Bonneville).

1. Public versus Private Utilities

This report already has discussed some of the major differences between public and private utilities in Washington, including the partially tax-exempt nature of public utilities and the difference between local and state regulation of rates. Additionally, public utilities are entitled to priority access to federally marketed power for all their customers (termed "public preference"). Private utilities can get guaranteed access to such power only for their residential and small farm customers, and this access will be phased out over the next five years in the absence of new legislation.

2. FERC Versus State or Local

The jurisdictional divisions between Federal Energy Regulatory Commission (FERC) regulation and Washington Utilities and Transportation Commission or local regulation are also complex.

In general, FERC regulates wholesale energy transactions and interstate transmission. On the grounds that electrons do not respect state boundaries, FERC has asserted jurisdiction over all high-voltage transmission service, whether nominally in-state or not, and whether wholesale or retail. The legal question of whether FERC can legally assert jurisdiction over retail transmission transactions is still being hotly disputed between the states and FERC. A test case involving a Washington retail customer (Tosco) is now before FERC.

FERC's authority over publicly owned utilities and Bonneville is more limited. It can review Bonneville's rates only to determine whether they are likely to recover all costs; and it can review publicly owned utilities' transmission rates only if there is a dispute over access.

H. Transmission, Distribution, and Reliability

Wires and poles that transmit power fall into the category of either distribution or transmission. In general, distribution represents smaller lines that carry power to end users; transmission lines are higher voltage and take power from a generator to a substation or to a utility for redistribution. Where one draws the line between transmission and distribution is not clear-cut. Transmission does have two clear components: first, it is regulated by FERC and not by the states; second, it transmits large amounts of power either between utilities or from one utility's generator to its load.

Transmission issues have become increasingly important for policymakers in recent years. First, since FERC and Congress ordered open access in 1992, the transmission system has essentially been converted into a public highway system that anyone (in theory) can use. However, it is a highway system that is to a large extent privately owned; and the owners happen to own a lot of the "trucks" (energy) that are using it. Finally, like highways, siting and building new transmission is costly and controversial.

Discussions have been going on for over two years concerning the amount of autonomy or coordination of transmission that is optimal in the Northwest. A consensus has been emerging to have the region's transmission owners turn over some operation, pricing and control functions to an independent grid operator (IGO). In the summer of 1996, the private utilities owning transmission in the Northwest announced their intent to form an IGO, which they dubbed IndeGO. They were joined later in the year by Chelan County PUD, Tacoma Public Utilities, and Bonneville, which owns the single largest portion of Northwest transmission. Bonneville's participation in an IGO is a subject of the Comprehensive Review.

An issue of increasing concern to utilities and customers is reliability. At the transmission level, reliability is monitored by a voluntary organization of utilities and other market participants termed the Western Systems Coordinating Council (WSCC). WSCC is a member of the North American Electric Reliability Council (NERC), which monitors system reliability issues for the North American continent. In the summer of 1996, two major western outages highlighted the need to improve communications among utilities and other participants to ensure that the reliability of the system is adequate at the high-voltage level. Further details of these outages and responses are included in Section 4 of this report. California recently passed legislation asking the California Public Utilities Commission to discuss the possibility of forming a western interstate compact to regulate transmission reliability. Washington will be involved in these discussions. In December 1996, the WSCC Board of Trustees voted to recommend mandatory compliance with uniform reliability criteria by all market participants. This matter will be taken up by NERC in January 1997.

At the distribution level, most outages occur through accidents (e.g., cars hitting trees) or so-called "acts of God" (e.g., windstorms). Minimizing these reliability problems is very costly, involving expensive undergrounding of wires or more local generation. Customers seem willing to undergo one or two minor outages a year rather than pay significantly higher electric costs.

Some types of customers, however, have a need for higher levels of reliability than others. Industrial customers with electronic equipment or production lines lose millions of dollars with an outage of only a second or two. Customers on life support systems depend on reliable electricity to live. The most cost effective response to this type of problem may be for individual customers to install equipment to provide backup power or voltage support to ensure that they have exactly the level of reliability they need.

One benefit of increasing competition is likely to be that customers will be able to choose the type of service that best meets their needs. One element of that choice could be choosing a reliability level that is appropriate and affordable for each customer, or perhaps each neighborhood.

[1] Energy Information Administration; Inventory of Power Plants in the United States, 1994; Table 20. Installed Washington generation totaled 23,880 megawatts in 1994; the three other Northwest states had 16,832 megawatts combined.
[2] See RCW 84.36.010
[3] P.L. 99-495
[4] See WAC 480-100-251 for private utilities; RCW 80.52 for joint operating agencies; and federal law for some Rural Electrification Act cooperatives; Northwest Power Act, P.S. 96-501, section 4(d)(2) for Bonneville.
[5] Northwest Power Planning Council (NWPPC), Draft Fourth Northwest Power Plan, Appendix G-2
[6] NWPPC, Power Plan, Chapter 6
[7] BCS, Incorporated, Impacts of Electric Utility Industry Restructuring on Low-Income Energy Assistance Programs, February 1996.
[8] Columbia River System Operation Review, Final EIS, November 1995; DOE/EIS 170
[9] NW Fishletter, September 20, 1996.
[10] IBID
[11] See for example, United Nation's Intergovernmental Panel on Climate Change (IPPC), Second Assessment of Scientific-Technical Information Relevant to Interpreting Article 2 of the UN Framework Convention on Climate Change.
[12] RCW Chapter 82.12
[13] RCW 35.21.860-870.

Section 3:Petroleum — Increased Vulnerability to Price Shocks

I. OVERVIEW

Unlike the electric utility industry, which commands a great deal of the time and attention of policy-makers, journalists, activists and advocates, the oil industry is noticed only during a crisis, such as the Gulf War or the Exxon Valdez incident. But petroleum products make up approximately 55 percent of Washington's energy consumption, and the combustion of petroleum products contributes nearly 60 percent of the state's carbon dioxide emissions. Washington businesses and residents consumed more than five billion gallons of oil in 1993 and spent $4.5 billion on gasoline, diesel, jet fuel, and other petroleum products.[1.] That is 50 percent more than they spent on electricity.

Several recent developments have either affected or have the potential to affect Washington's petroleum consumers. Record demand for gasoline and declining domestic crude oil production leaves us more dependent than ever on imported oil, and more vulnerable than ever to oil price shocks.

That vulnerability was demonstrated during the spring and summer of 1996, when tight supplies drove up the price of gasoline by 15-20 cents per gallon over 1995. Prices climbed higher and stayed high longer on the West Coast, due to problems in the California refining industry. Other developments included successful Congressional legislation to allow the export of Alaska North Slope crude oil, and the Olympic Pipeline Company's proposal to build a petroleum product pipeline across Snoqualmie Pass.

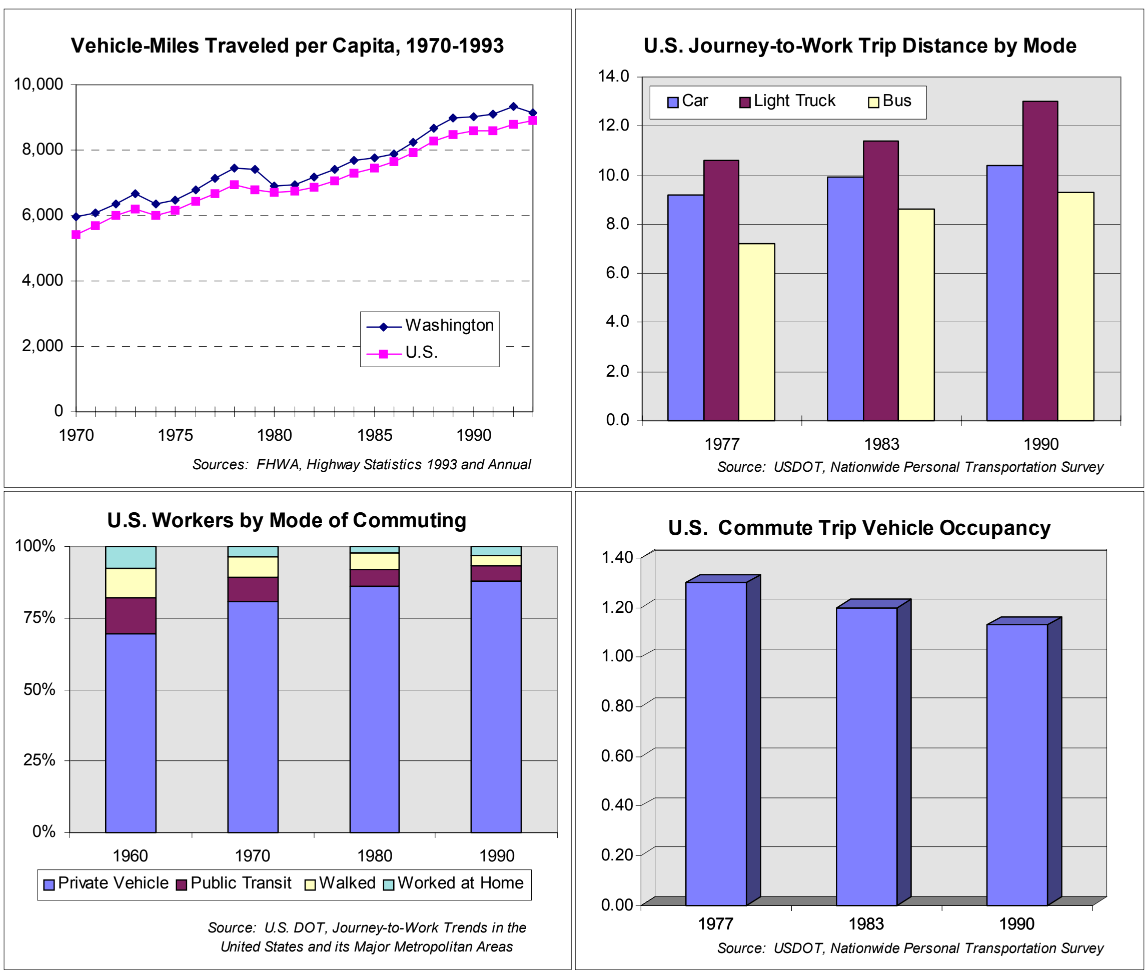


Figure 1. Why Are We Using so Much Gasoline?

II. U.S. GASOLINE DEMAND AT RECORD LEVELS

Through the first nine months of 1996, gasoline consumption in the United States averaged a record 7.85 million barrels per day, an increase of one percent over 1995 and three percent over 1994.

U.S. gasoline demand peaked at 7.4 million barrels per day in 1977, but fell rapidly after the Iranian revolution and the second oil shock in 1978, reaching a low of 6.5 million barrels per day five years later. Demand began to recover after prices fell in 1985, and new records for gasoline demand have been established in each year since 1993.

Why are we using so much gasoline? The biggest reason is that we are simply driving more and more miles each year. Per capita vehicle travel averaged approximately 9,000 miles in 1993, up from less than 6,000 miles in 1970.

The reasons for this are multiple and diverse. The proportion of people driving to work increased from 70 percent in 1960 to nearly 90 percent in 1990, while the percentage using transit declined from 13 percent to five percent. The length of the average trip to work increased from 9.2 miles in 1977 to 10.6 miles in 1990. And average commute trip vehicle occupancy declined from 1.3 in 1970 to 1.1 in 1990. ***Figure 1*** depicts some of the major causes of high gasoline consumption in the United States.

What is the outlook for gasoline demand? Population and vehicle travel continue to increase, making it unlikely that growth in gasoline demand will slow. What is worse, growth in the fuel efficiency of the nation's stock of cars and trucks is slowing and may even reverse. The increasing popularity of light trucks and sport utility vehicles, combined with flat new car fuel efficiencies[2], has caused the fuel efficiency of an average new vehicle to *decline* in each of the last seven years, from a high of 26.0 miles per gallon (MPG) in 1987 to 24.6 MPG in 1994.

Recent trends in vehicle fuel efficiency are depicted in ***Figure 2***. The top line represents new vehicle fuel efficiency, which has been declining slowly since the mid-1980s.[3] Stock average fuel efficiency, represented by the dashed line, has leveled off since 1990. The shaded area represents the difference between new and existing vehicle

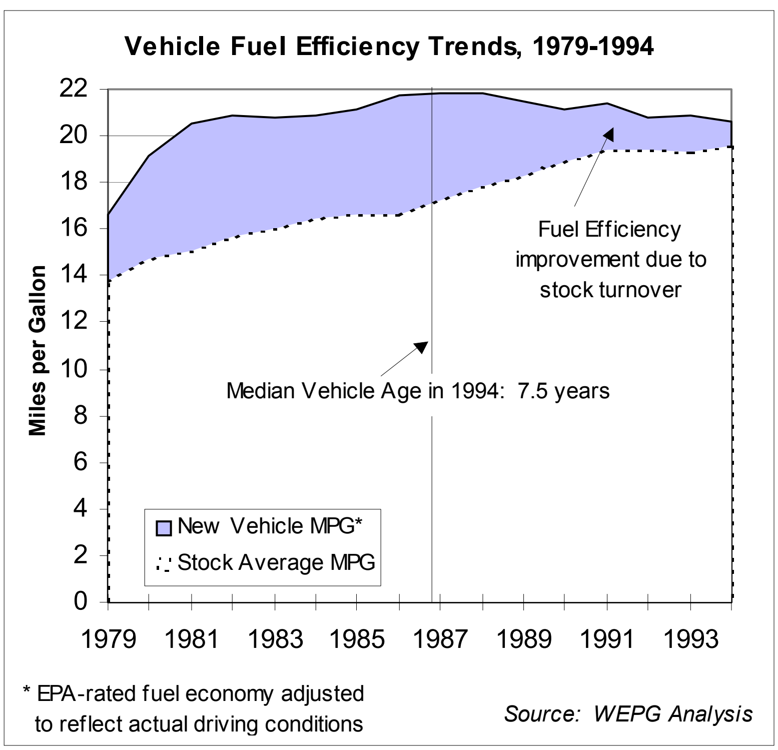


Figure 2. An End to Years of Fuel Efficiency Improvements?

fuel efficiency, or the efficiency that is left to be "wrung out" of the existing stock of vehicles. This area has been shrinking since 1986. In 1994, a new vehicle was only five percent more efficient than the average existing vehicle.

And, with average vehicle age at 7.5 years, the vehicles being replaced are no longer 1970s-era gas hogs. Unless current trends are reversed, the average efficiency of the nation's stock of cars and trucks will likely begin to decline by 2000.

III. TIGHT MARKETS CAUSE HIGHER GASOLINE PRICES THROUGHOUT 1996 DRIVING SEASON

The increase in gasoline demand has left us vulnerable to oil price shocks. This vulnerability was demonstrated during 1996, when a spring price run-up turned into a summer of higher gasoline prices, attracting the attention of policymakers throughout the nation.

Crude oil prices, which increased 25 percent between January and April of 1996, a cold winter, turmoil in the Middle East, and problems in the U.S. refining industry were cited as the culprits. The extremely cold winter in most of the U.S. caused refiners to continue producing heating oil long after the time when they would normally begin to build gasoline stocks. Precarious political situations in Saudi Arabia, Iraq and the Israeli-occupied West Bank kept oil traders jittery throughout the summer.

New "just-in-time" inventory practices exacerbated the problem, as did fires that idled ten percent of California's refining capacity, shortly after the in-

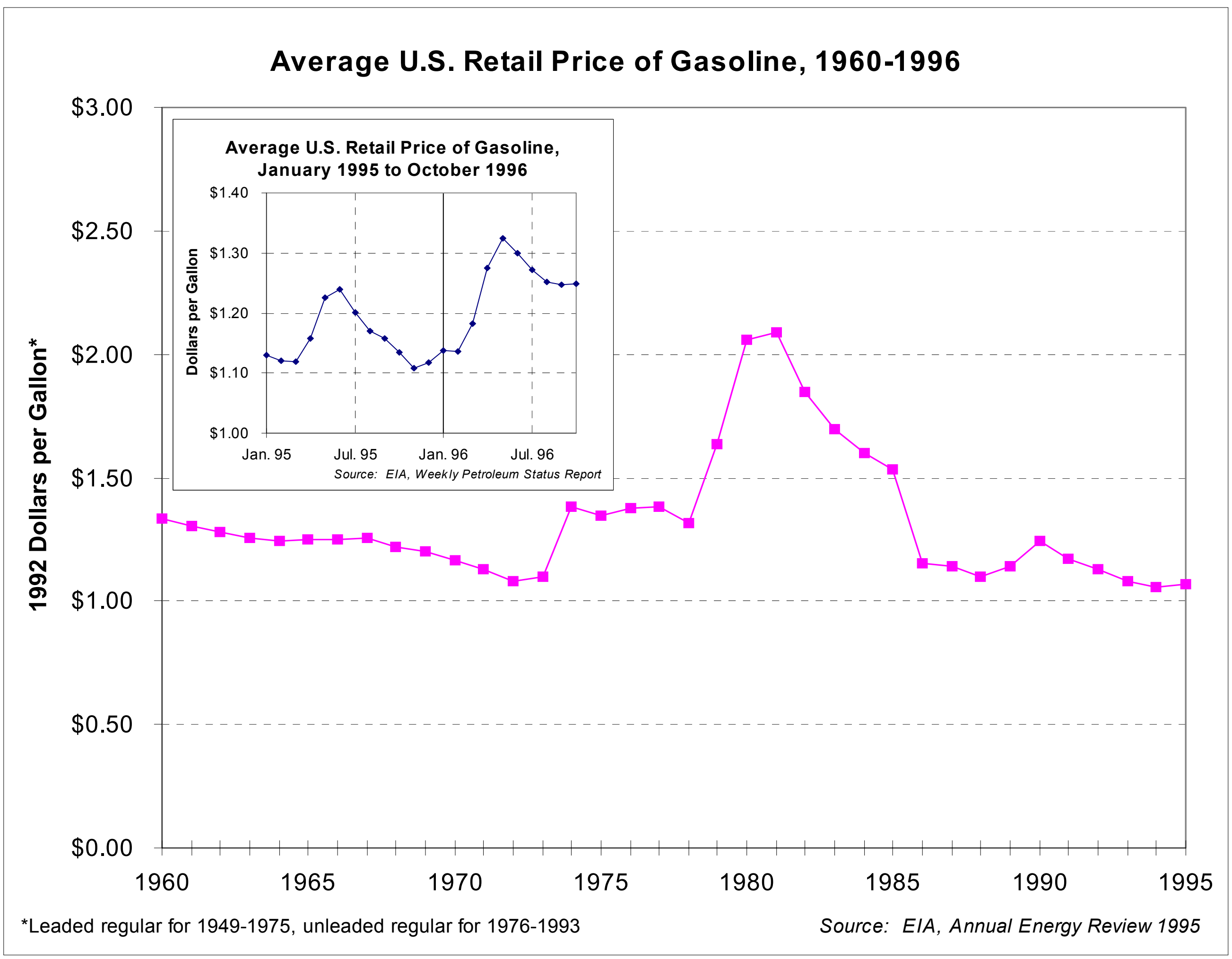


Figure 3. Gasoline is More Expensive in 1996, But Still Cheap by Historical Standards

troduction of new reformulated gasoline standards by the California Air Resources Board. Longer-term contributing factors included increasing demand for gasoline and other petroleum products in the developing world, and the decline in U.S. refinery capacity.[4]

Prices eased during the summer and fall, despite unexpectedly high crude prices due to the turmoil in Iraq, and were expected to remain low throughout the fall and winter. However, stocks of heating oil were extremely low heading into the winter of 1996-1997, and another cold winter could mean low gasoline inventories and higher prices in April and May of 1997.

But prices were still extremely low by historical standards, as illustrated in ***Figure 3***. When adjusted for inflation to 1992 dollars, gasoline prices in the 1960s did not drop below $1.20 a gallon. At $1.06 per gallon, 1994 featured the lowest average price since at least the 1940s, followed closely by 1995 at $1.07 per gallon and 1972 at $1.08 per gallon.

IV. U.S. OIL IMPORTS NEAR 50 PERCENT OF TOTAL SUPPLY

High gasoline demand and the continued decline in domestic production pushed U.S. oil imports to a near-record 8.5 million barrels per day through the first 8 months of 1996, an increase of 7 percent over the same period in 1995. With low heating oil inventories keeping demand for crude oil high, the United States is set to import 3.08 billion barrels of oil in 1996, second only to the record 3.13 billion barrels set in 1977. Imports are expected to reach a record 3.14 billion barrels in 1997, exceeding 50 percent of U.S. consumption for the first time (see ***Figure 4***).

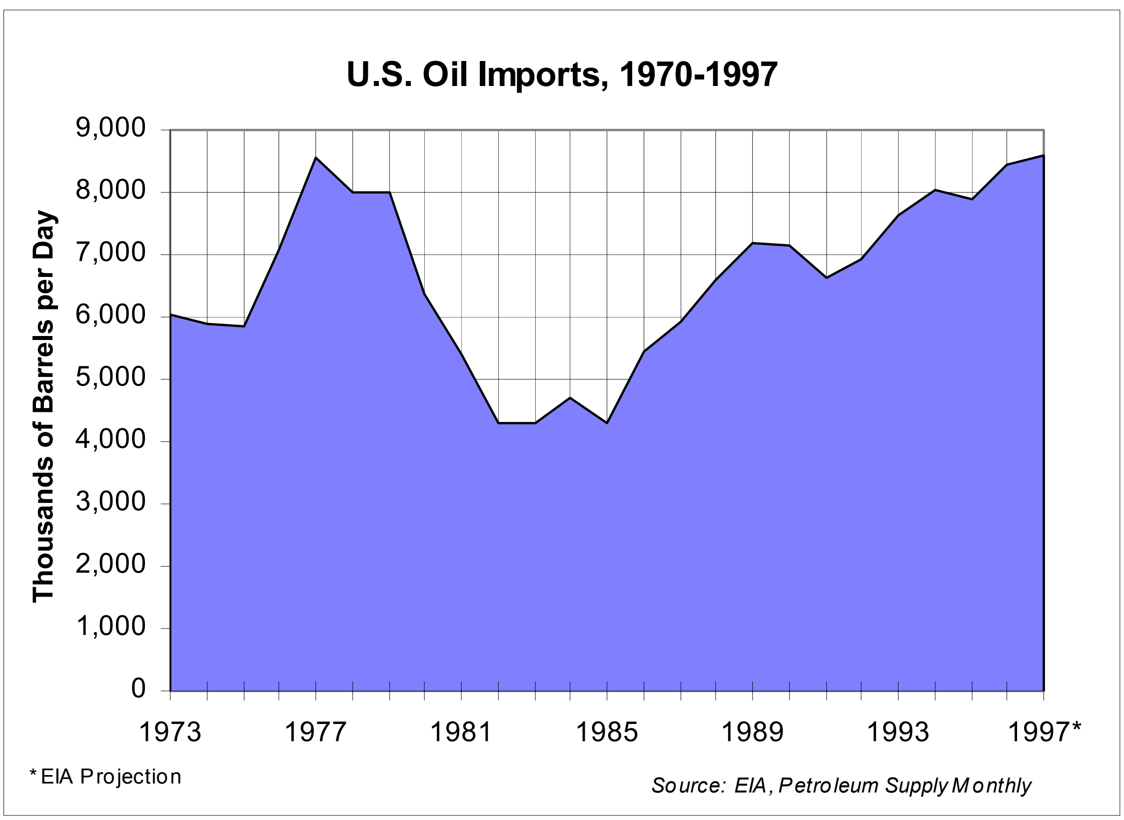


Figure 4. U.S. Oil Imports Set to Exceed Levels of 1970s

While the level of oil imports is commonly viewed as an indicator of vulnerability to oil price shocks, overall demand for petroleum products is a better yardstick. Because crude oil is fungible, prices do not differ substantially from one location to another. Although the prices of various crude streams are not directly comparable due to differences in specific gravity, sulfur content, transportation costs, and other factors, ***Figure 6*** shows clearly that the price of domestically produced crude oil rises and falls in tandem with world oil prices. For consumers, the distinction between domestic and imported oil is meaningless.

V. LIFTING OF BAN ON ALASKAN OIL EXPORTS NOT EXPECTED TO HAVE MUCH EFFECT

The fluid nature of world crude oil markets also explains why little long-term impact is expected from the export of Alaska North Slope (ANS) crude oil, which became legal for the first time in April of 1996. In a press release announcing the lifting of the ban, the White House stated there was "no likelihood of adverse impacts from ANS exports on Washington State's consumers, refiners, or environment."[5]

However, since Washington refineries obtain nearly 90 percent of their crude oil supply from Alaska's North Slope, there is some concern about seasonal and shorter term effects. The primary impact would occur during winter months, when West Coast demand and prices are lower and local conditions allow for higher ANS production.

In the past, ANS producers faced the choice of continuing to ship crude oil to West Coast markets, suppressing prices there, transporting crude oil through the Panama Canal Pipeline to Gulf Coast refiners at a substantial discount, or producing less. As a result of lifting the export ban, the U.S. Department of Energy predicted that ANS production could increase by 100,000 barrels per day, as "surplus" oil is now free to find higher prices in East Asia.[6]

This means that Washington refiners could see slightly higher winter crude prices as ANS produc-

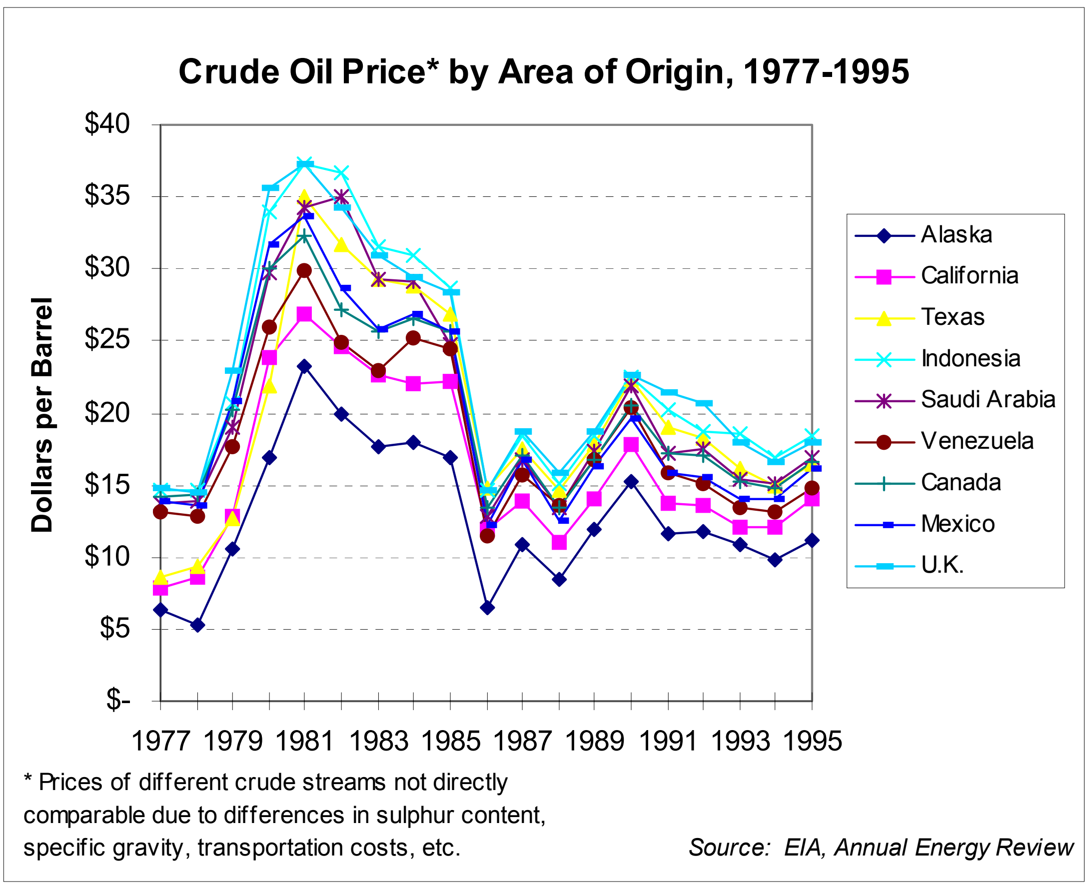


Figure 6. Domestic Crude Prices Rise and Fall with World Prices

ers begin to export surplus crude. However, most of the surplus will result from the cessation of seasonal shipments to the Gulf Coast, and from increased ANS production. This will raise revenues for Alaskan producers, but should have little effect on West Coast markets.

VI. PROPOSED PIPELINE WOULD BRING REFINED PRODUCT TO EASTERN WASHINGTON

The Washington Energy Facility Site Evaluation Council is currently reviewing the Olympic Cross Cascade Pipeline Project (Application No. 96-1). The Olympic Pipeline Company is proposing to construct and operate a 230 mile pipeline which would carry gasoline, distillate, and jet fuel from Woodinville to Pasco.

The Cross Cascade Pipeline would be the third with a terminus in Eastern Washington. The Chevron Pipeline currently transports refined products from Utah to a terminal in Pasco, while Spokane is the main Washington delivery point for the Yellowstone Pipeline, which brings product from a refinery in Billings, Montana.

The Cross Cascade Pipeline would primarily replace the trucks which currently transport product across the Cascade mountain passes and barges which carry petroleum products from Vancouver to Pasco on the Columbia River. If the project is found to be environmentally acceptable, it could considerably reduce the cost of transporting petroleum products from the Bellingham-area refineries to Eastern Washington, potentially resulting in a more diverse and economical supply of gasoline and diesel fuel.

---

[1] These figures do not include over one billion gallons of non-energy uses of petroleum, such as asphalt, lubricants, and plastics.

[2] The efficiency of the average new car has not increased appreciably since oil prices dropped in 1985. New car fuel economy reached 28.2 MPG in 1986, topped out at 28.8 MPG in 1988, and stood at 28.2 MPG in 1994.

[3] New fuel economies have been adjusted to reflect actual driving conditions. The Energy Information Administration estimates that the difference between EPA-rated fuel economy, which is determined through laboratory tests, and actual performance is approximately 16 percent. That is, a vehicle rated at 25 MPG by EPA will average 21 MPG in on-road conditions. Personal communication with David Chien, Energy Demand Analysis Branch, Office of Integrated Analysis and Forecasting, Energy Information Administration.

[4] According to the EIA's *Annual Energy Review 1995*, domestic refinery capacity declined from a high of 18.6 million barrels per day in 1981 to 15.0 million barrels per day in 1994.

[5] White House Press Release, April 28, 1996.

[6] DOE Press Release, April 28, 1996.

Section 4: Energy Emergencies and Contingency Planning

Supply shortages or disruptions can ultimately affect every person and every economic sector in the state. The ability to anticipate supply shortages, and respond appropriately to supply disruptions — such as the widespread power outages across the Western U.S. this summer or the extended power outages in Eastern Washington resulting from the devastating winter storms in November 1996 — can help mitigate the severity of emergencies.

I. PREVENTION AND RESPONSE

Safe and reliable supplies of energy underpin essential services such as heating, lighting, refrigeration, transportation, and communications. Energy emergencies — supply shortages or disruptions — can be extraordinarily devastating. They have economic consequences, and they can threaten lives and property.

Electricity emergencies have the greatest potential for causing loss of life and affecting health and safety. Unlike oil and gas emergencies, where electricity can be used to provide heat, the loss of electricity shuts off all heating systems that require ignition or fans. Electricity emergencies also affect lighting, water and sewer processing and pumping services, food processing, refrigeration, communications, life support systems, security systems, banking and bankcard services, and gasoline pumping.

Prevention provides the first line of defense. Energy distribution companies design strong and redundant systems to guard against failures. But failures will occur, and contingency plans are needed to address a full range of emergency situations — from economic inconvenience to major disasters. Energy suppliers handle most emergencies, with the state providing assistance as needed. In more severe emergencies, the state plays a larger role. During a major catastrophe, for example, the Emergency Management Division (EMD) of the Military Department coordinates all public and private response efforts including any interaction with federal agencies.

II. TYPES OF EMERGENCIES

Washington's energy systems are vulnerable to two types of emergencies: *acute system failures*, usually caused by accidents or severe weather, and *supply shortages*.

A. Acute System Failures

All energy delivery systems are vulnerable to accidents and disasters. However, petroleum and natural gas disruptions are quite rare and tend to have economic rather than life-threatening consequences. Electricity system failures are more common and more serious.

With increasing reliance on natural gas-fired electricity generation, there may be more potential for combined natural gas/electricity emergencies. During very cold weather there could be strong demand for natural gas for both heating and electricity generation. Currently, Washington's natural gas infrastructure is sufficient to meet even extraordinary demand. As demand increases, the infrastructure may have to expand.

Acute electric system failures usually result from storms or accidents that damage facilities and equipment. When this happens, the supply of energy cannot reach users until the damage has been repaired and service restored.

For example, numerous state agencies gathered under the direction of the Military Department's Emergency Management Division to assist utilities, businesses, citizens, and local governments in response to the December 1995 windstorm that caused 650,000 customers to be without power (about half the number of customers affected in the infamous January 1993 Inauguration Day Storm). Energy Policy staff communicated with utilities to develop a damage assessment report and to calculate the nature, extent, location and possible duration of the power outage; acted as liaison between utilities and other agencies; notified utilities of road closures in their area; and linked Puget Power with the State Patrol to facilitate accelerated and mass permitting of

B.C. Hydro utility repair trucks coming across the border to assist with system recovery.

Much broader system failures occurred in the Western U.S. in the summer of 1996. The first blackout occurred July 2 when hot weather caused a power line in Idaho to sag too close to a tree, causing an electrical arc to short-circuit the line. During the next 35 seconds, two million customers in 14 states experienced power interruptions as the entire electrical system automatically separated into five electrically separate "islands" in order to avert major damage to generation and transmission facilities. The August 10 outage was even more extensive, affecting 7.5 million customers and businesses throughout the West. A series of events caused this outage: high loads on the Northwest transmission system caused by hot weather throughout much of the region; some system equipment out of service; power lines sagging too close to trees; and a resulting chain reaction that shut down the main Pacific intertie between the Northwest and California. Although Washington remained relatively unaffected during both of these power failures, Energy Policy staff worked closely with Emergency Management, utilities in the Western U.S., the Bonneville Power Administration (Bonneville), the Western Systems Coordinating Council, and the Northwest Power Pool to gather and exchange information in order to assess the situation as it was occurring and determine its affect on Washington State.

The U.S. Department of Energy (DOE) has analyzed these outages extensively and has determined that the present institutional framework, which promotes reliability through a largely voluntary and self-regulating system worked well in these incidents. DOE believes the system will continue to work well in the future, provided that it can adapt to the new competitive environment facing the industry.[1] However, there has also been concern that power outages may become more common as deregulation increases the number of energy suppliers using the grid to transmit power, and as utilities attempt to cut costs in the new competitive utility environment by not investing enough in maintenance.

The Western Systems Coordinating Council has prepared a report with a complete analysis, conclusions and recommendations to prevent these types of electric power disruptions in the future.[2]

B. Supply Shortages

Energy supply shortages can also result from accidents or disasters. For example, the locks on the Columbia River are closed for two-weeks every year for major repairs and maintenance. Petroleum companies know of these routine closures months in advance and prepare by shipping extra barges of petroleum products up the Columbia River in the weeks before the closure. In February 1996, however, Washington experienced the worst flooding in many years. Because of extremely high water on the Columbia River, the Coast Guard closed the river to navigation because of the hazard to shipping caused by large floating debris. This emergency closure occurred just days before the scheduled closure of the locks were to take place. Consequently, not as many petroleum barges made it up-river to the Tri-Cities as planned, and companies were unable to stockpile as much product.

The Governor's Office contacted Energy Policy staff to research the situation to determine the severity and extent of the potential petroleum shortage. Energy Policy staff contacted barge operators, petroleum companies, and other governmental agencies to assess the situation and provide information to the Governor's Office and Emergency Management. All petroleum companies confirmed that supplies of various products were low in the Tri-Cities area, but that they were independently taking actions, such as increasing trucking of petroleum products, to ensure that distributor and customer demands were met. Localized shortages could have developed, however, if customers or distributors made unusually large purchases because they anticipated higher prices. This exceptional demand could have outstripped the distribution system's ability to respond.

More extensive energy shortages normally result from a broader set of causes. For example, war in the Persian Gulf could create a severe worldwide shortage of oil. Drought in the Northwest could set the stage for insufficient winter supplies of electricity. Because shortages have different causes than acute system failures, they require a different response. Demand needs to be restrained to meet available supply until supply can be increased.

Repairing facilities usually does not factor into the response.

Unlike most acute system failures, addressing significant energy shortages requires substantial state involvement. Efforts center on getting the public to respond correctly by reducing energy consumption. State leadership in raising public awareness and educating consumers is critical.

Allocating scarce energy supplies to ensure that essential service providers have fuel may also be required. Because allocation can be quite contentious, state leadership is required to ensure effective and equitable distribution. In the case of extreme shortages, some rather demanding steps may have to be taken — such as waiving environmental restrictions on certain types of energy use. This can only be done under the guidance and authority of the Governor's emergency powers.

III. RESPONSE FOR PETROLEUM SHORTAGES

The major impact of most petroleum shortages is economic: prices rise to reflect limited supplies. Steep or rapid rises in price can cause a variety of economic problems. These problems adversely affect people with low or fixed incomes. Businesses that depend heavily on transportation may be threatened by increased cost of doing business. Furthermore, if a shortage is very extreme, pricing alone cannot guarantee sufficient fuel to essential service providers.

Within two weeks after Iraq invaded Kuwait in 1991, gasoline prices rose 20 percent in Washington. When the Iraqi army collapsed, prices returned to pre-war levels and a shortage was averted. Prices during an actual shortage could have gone much higher.

In the months preceding the Persian Gulf war, Energy Policy staff prepared the state for the possibility of a major oil shortage. Efforts concentrated on public education and the preparedness of state agencies, local governments, essential service providers, and transit agencies. Arrangements were made with oil companies for responding to critical needs and administering fuel allocations in case such steps were necessary.

This exercise revealed strengths and weaknesses in the state's existing Petroleum Products Contingency Plan. The plan requires serious updating, which will take place this biennium. At the same time, Energy Policy staff will and review and revise the administrative rule for dealing with petroleum emergencies to reflect changes in the industry, in federal regulations, and in policies for addressing petroleum shortages.

IV. REGIONAL ELECTRICITY SHORTAGES

One type of electricity shortage is the inability to meet daily peak demand. The Northwest's vast hydroelectric system historically has provided a peaking capacity far beyond Washington's daily needs. However, some areas of the state, notably the Puget Sound region, are beginning to experience occasional difficulty meeting daily peak demand. This emerging problem results from transmission constraints and bottlenecks, not insufficient generation, and is being addressed by the utility industry.

Electricity systems also have seasonal peaks; Washington's comes in the winter when demand for heating increases. The region is unlikely to experience an electricity shortage as the direct result of seasonal peaks, however. Utilities can foresee a shortage by monitoring reservoir levels and weather. As fall and winter progress, utilities can work to avert such a shortage by building and operating thermal and nuclear generation and purchasing more energy from out of state. The result is higher energy costs, but no winter shortage.

A cursory analysis performed by Bonneville in 1992 estimated that, even in the worst water years and with extremely cold weather, most shortages could be handled with a minimal voluntary effort. Years of drought and cold weather are those where such a shortage is most likely. ***Figures 1*** and ***2*** provide historical information on Columbia River runoff and reservoir levels.

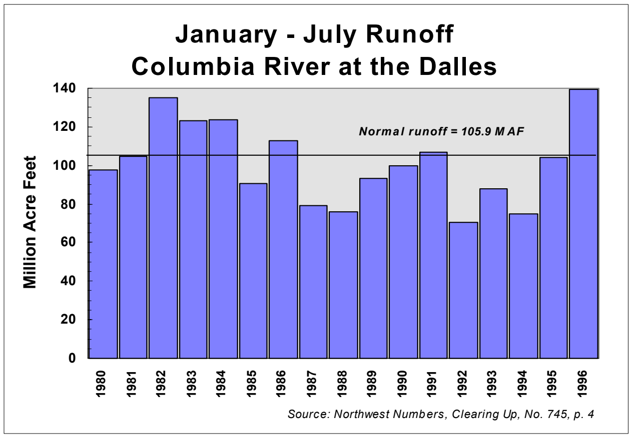


Figure 1. Columbia River Runoff Can Vary Substantially from Year to Year

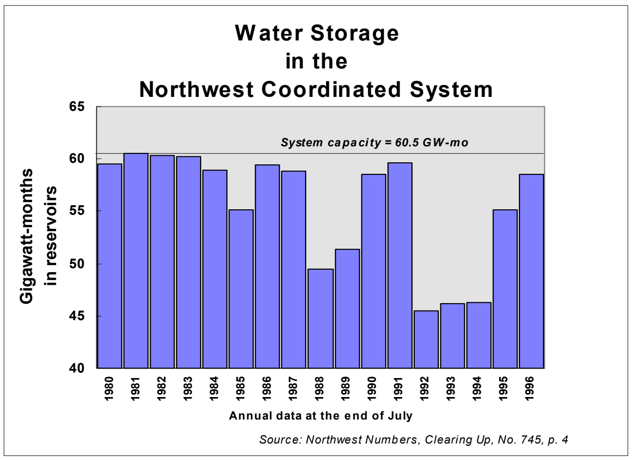


Figure 2. Below Normal Water Storage a Result of Recent Droughts

If a shortage occurs, it will be regional in nature. The provinces and states of the Northwest Power Pool (Washington, Oregon, Idaho, Wyoming, Nevada, Utah, Montana, British Columbia and Alberta), coordinate operation of the hydroelectric system to maximize its efficiency and potential.
In addition, the entire Western United States is interconnected by a single, large transmission grid. Within the grid, electrons do not recognize state borders. If there ever is insufficient energy to meet load on the grid, all Western states will face the same shortage. Recognizing the regional nature of electricity supplies, the four Northwestern states have adopted a regional approach for managing a shortage.

The Northwest's electric utilities, public utility commissions and state energy offices worked together to update the Regional Curtailment Plan for Electric Energy. The four states used the regional plan as a model and adopted similar state plans. In November 1994, the Washington State Curtailment Plan for Electric Energy was adopted as administrative rule (WAC 194-22). During the next year Energy Policy Staff will review Washington's Curtailment Plan to determine if any revisions are necessary based on the restructuring of the electric industry.

The plan calls for the four Northwest states to initiate curtailment actions jointly. Washington's plan emphasizes voluntary curtailment and equal curtailment requirements for residential, commercial, and industrial customers. The plan has five stages; each level represents a more severe shortage that requires sterner steps. The first two stages are voluntary. The final three stages are mandatory. Consuming sectors are treated equally until stage four, where greater requirements to reduce consumption are placed on commercial and industrial customers. State law requires that such emergencies be implemented by CTED under the guidance and direction of the Governor's Office. Under the most severe emergencies, an emergency legislative committee is convened and the Governor's emergency powers are activated (RCW 45.21G).

V. CONCLUSIONS

The safety and welfare of Washington's residents are occasionally threatened by energy emergencies, disruptions, and shortages. Preparedness and speedy, correct responses can minimize these threats. Being prepared requires maintenance of a response program to ensure contacts are current, response personnel are properly trained, and response plans work well within evolving energy markets and infrastructure. CTED's Energy Policy staff lends expertise to utilities and other state agencies as needed to mitigate the effects of acute system failures and localized outages. By statute, CTED is also responsible for administering contingency plans; coordinating a response to petroleum and electricity supply shortages; and administering the Governor's energy emergency powers (RCW 43.21F and G).

---

[1] See The Electric Power Outages in the Western United States , July 2-3, 1996 - Report to the President; U.S. Department of Energy, Washington, DC; August 1996.
[2] See Western Systems Coordinating Council Disturbance Report For the Power System Outage that Occurred on the Western Interconnection, August 10, 1996; Approved by the WSCC Operations Committee on October 18, 1996.

Section 5: Washington's Energy Strategy

I. BACKGROUND

In 1991, the Legislature instructed the Governor to appoint a group of 20 citizens, representatives of business and industry, and public officials to recommend a strategy that would work toward assuring Washington residents of adequate, economical, and reliable energy while protecting the environment and promoting economic development. The Washington State Energy Strategy is the result of the Committee's work.

The Energy Strategy Committee took great pains to develop an energy strategy that emphasizes jobs, economic well-being, and environmental protection. The Energy Strategy is an important document, not because it presents a completely new set of energy-related recommendations, but because it consolidates these actions into a single, organized framework that can guide Washington's decisions about energy sources and use into the next century. The recommendations in Washington's Energy Strategy rely on known cost-effective technologies, beginning with improved efficiency, renewable resources, and wise use of natural gas.

Washington's Energy Strategy is organized into five main topic areas:

- Transportation Challenges;
- Energy for Buildings, Farms, and Industry;
- Protecting Our Environment;
- Siting Energy Facilities; and
- Public Awareness and Education.

In 1994, the Legislature enacted ESB 6493, which made Washington's Energy Strategy the primary guidance for implementation of the state's energy policy. The legislation also provides for a public process to update the Strategy as needed.

II. GOVERNOR'S EXECUTIVE ORDER

Also in 1994, Gov. Lowry signed an Executive Order implementing the Washington Energy Strategy. The Executive Order:

- Determined that the Washington Energy Strategy shall be the policy framework for energy decisions made by state agencies.
- Named the Washington State Energy Office (now the Department of Community, Trade and Economic Development) as the lead agency for implementing the Washington Energy Strategy.
- Directed the Energy Office to convene an interagency working group to ensure efficient coordination and pursue implementation of the most promising policy alternatives in the Strategy.

III. INTERAGENCY WORKING GROUP

The Interagency Working Group has met eight times since June 1994 and, in addition, has received periodic written updates on energy issues. In addition to the eight agencies specified in the Executive Order, six additional agencies participated regularly in the working group. The working group explored current activities related to the Energy Strategy recommendations through a series of informational presentations given by staff from a number of state agencies. Through these presentations, working group members became better informed regarding the Energy Strategy. The format also provided a framework for action items, formation of subcommittees, and future discussion and follow-up.

The working group reviewed current state agency activities associated with specific Energy Strategy recommendations and passed a series of recommendations based on presentations by participating agency staff. The recommendations sought to improve organizational communication and solve problems that occurred in implementing Energy Strategy recommendations.

During the course of the meetings, the following issues emerged as topics for consideration and action by the working group.

A. State Agency Natural Gas Purchasing

A subcommittee of the Energy Strategy Working Group researched the implementation of a statewide natural gas purchasing program to ensure that public entities are able to purchase natural gas at the lowest possible cost. The gas procurement alternatives available to Washington State institutions can result in savings of up to $1 million in the nearly $12 million annual cost for natural gas.

The Office of State Procurement is planning to expand its current gas broker services contract next spring to take full advantage of cost saving opportunities from deregulation in the natural gas industry. The natural gas requirements of other large state agencies and institutions will be consolidated into this statewide contract to obtain lower cost gas and interstate transportation services. The contract then may be expanded to enable smaller state institutions, counties, cities, and school districts to participate.

Additionally, the Department of General Administration (GA) is closely following developments in the deregulation of the electrical industry. As various utilities throughout the state offer their electrical customers opportunities to purchase lower cost electricity, GA will be in a position to advise and provide contracting services to state agencies and political subdivisions positioned to pursue such savings.

B. Public Sector Energy Efficiency

Since a major priority for the Energy Strategy Working Group involves public agencies leading by example, improving the efficiency of state government, and cutting costs of operation, much of the focus of the working group has centered on the area of public sector energy efficiency. GA has been involved with providing energy conservation measures to state facilities using energy performance contracting procedures. GA has completed over $20 million worth of energy performance contracts which will save state 350 billion BTUs of energy and $30 million over the life of the measures. GA is currently working on $7 million worth of energy projects which will be completed during the 1997 biennium. Agencies which are taking advantage of performance contracting are the Community and Technical Colleges; GA; Departments of Social and Health Services, Health, and Corrections; and, the Washington State Historical Society Museum. GA is also working with King County to develop a program and interest is being expressed by other local governments.

In 1990, public facilities in Washington (including state and local governments, K-12 schools, and colleges/universities) spent more than $160 million dollars per year on energy. A study of conservation potential conservatively estimated that Washington public buildings have saved over $30 million per year of cost effective energy savings potential.[1] In the last six years, state facilities have captured approximately 42 percent of the projected savings, while other public facilities have captured approximately 24 percent of their projected savings. As public agencies begin to take advantage of the performance contracting opportunities, the rate of implementation will increase.

The Office of Financial Management has initiated a group called the Capital Policy and Communications Committee to deal with public sector facilities issues. The committee is designed to streamline administration of state capital facilities by increasing communication among facility administrators and improving processes. Members of the Energy Strategy Working Group have participated on this committee, which is actively pursuing issues connected with building efficiency in the public sector, including funding and facilities operation and maintenance related to energy use and conservation. The Capital Policy and Communications Committee completed a survey of facilities' practices and developed model maintenance legislation for introduction in the 1997 legislative session.

C. Renewable Energy Matching Grant Program

Energy Office staff presented the working group with an overview of the $100,000 Renewable Energy Matching Grant Program and encouraged state agencies to submit proposals for high visibility renewable energy projects. GA was awarded one of the grants for $10,000 to install 10 photovoltaic (PV) security lights, as well as a PV powered emergency phone.

D. Low-Income Weatherization Programs

The Department of Community, Trade and Economic Development (CTED) presented a discussion of the issues facing low-income citizens as a result of federal budget cuts and other actions affecting this vulnerable population in our state. Several action items supporting low-income energy issues were suggested for the working group, including identifying legislative incentives or changes needed to secure low-income energy conservation. The recommendations also resulted in the letter from the working group to the Governor, encouraging a representative with a background in energy conservation and low income energy issues be appointed to the Affordable Housing Advisory Board. Ray Rickers, Housing Director from the Spokane Neighborhood Action Program, was appointed by the Governor to the Affordable Housing Advisory Board. His awareness and understanding of low-income issues and weatherization program will be an asset to the board.

E. Ground Source Heat Pumps and Geothermal Resources

As a result of coordination between working group members following a discussion of geothermal energy issues, the Department of Ecology will now give priority processing to permit applications for water rights that involve "non-consumptive" water use. This policy change will help remove barriers and pave the way for faster approval of water rights applications for groundwater or geothermal heat pump systems.

Another area of concern regarding geothermal development discussed by the working group dealt with geothermal leases. On federal lands leased for geothermal exploration and development, 50 cents of the one dollar per acre rental fee is returned to the state. This amount is split between the state's geothermal commercialization efforts, the Department of Natural Resources for resource assessment, and the county of origin for social and environmental impact mitigation. Developers, however, are refusing to lease federal lands in Washington because the state's leasehold excise tax is assessed on federal geothermal leases; therefore, no money is coming into the geothermal fund to support development of geothermal resources. The Department of Revenue has agreed to seek legislation in the 1998 session to remove the excise tax on leases of federal land for geothermal exploration.

F. Energy Related Tax Incentives and Credits

Energy Office solar and wind specialists introduced to the working group the idea of creating a sales and use tax deferral or exemption for solar and wind equipment used to generate electricity. The working group encouraged further review of the issue and formed a subcommittee to consider strategies to develop and promote appropriate legislation.

Industry partners stepped forward to sponsor the concept and promote the legislation during the 1996 session. These efforts resulted in the passage of legislation addressing a sales tax exemption for wind and solar equipment that produces over 200 kW of electricity, signed into law on March 28, 1996. During the 1997 legislature, the Washington Solar Energy Industries Association will seek a language change lowering the exemption threshold on the solar portion of the legislation to increase the bill's effectiveness.

IV. STATUS OF ENERGY STRATEGY RECOMMENDATIONS

Energy Policy staff have developed a matrix listing each recommendation determined to be a priority in the Energy Strategy and monitors the implementation of these recommendations. This list of recommendations, agencies assigned to address those recommendations, and brief status descriptions are included in ***Appendix D***.

V. NEXT STEPS FOR THE ENERGY STRATEGY

Based on the dramatic changes underway in the energy field, the Washington State Energy Strategy will be revised and updated in the coming biennium.

---

[1] Baylon, D., B. Davis, J. Heller, and G. Katz. 1991. *Energy Conservation in Public Buildings.* Seattle, WA: Ecotope for Washington State Energy Office. and Kunkle, R. 1995. *Annual Progress Report for the Public Sector Program, Fiscal Year 1995.* Olympia, WA: Washington State Energy Office.

Section 6: Siting and Regulating Major Energy Facilities

I. BACKGROUND

The Energy Facility Site Evaluation Council (EFSEC or Council) provides a "one-stop" siting process for major energy facilities in Washington. Applicants for energy facility siting receive all of their necessary state and local environmental permits and other licensing terms and conditions from the Council. Once a facility is sited, the Council has a continuing responsibility to monitor the construction and operation of the facility. EFSEC also ensures that effective and coordinated emergency response plans are in place and satisfactorily tested for the WNP-2 nuclear plant.

EFSEC is a Washington State agency comprised of a citizen chair appointed by the Governor and representatives from nine state agencies including: the Military Department, Departments of Natural Resources, Community Trade and Economic Development, Transportation, Fish and Wildlife, Health, Ecology, Agriculture, and the Washington Utilities and Transportation Commission. When an application to site a facility is submitted to the Council, it is augmented by representatives from particular counties, cities, or port districts potentially affected by the project. Administrative and staff support for EFSEC is provided by the Department of Community, Trade, and Economic Development.

The Council's responsibilities derive from the Revised Code of Washington (RCW) Chapter 80.50.

II. GOALS

EFSEC activities are organized under three goals:

1. Provide an orderly, systematic procedure for applicants, agencies, and other interested parties involved in siting or expanding large energy facilities: thermal electric power plants above 250 megawatts and their associated facilities; large intrastate natural gas and oil pipelines; oil refineries; and underground natural gas storage facilities.
2. Regulate the construction and operation of major energy facilities to ensure compliance with the conditions of the site certification agreement (license) issued for the life of the project.
3. Ensure that effective and coordinated offsite emergency response programs and plans involving state, local and federal agencies are in place and satisfactorily tested for the WNP-2 nuclear power plant on the Hanford Site.

III. BENEFITS

The Council centralizes the evaluation and oversight of large energy facilities in a single location within state government. The Council considers a number of factors in determining whether a facility should be approved, approved with modifications, or denied. As part of the evaluation and review process, protection of environmental quality, safety of energy facilities, and concern for energy availability are all taken into account by the Council. If a project is approved, EFSEC specifies the conditions of construction and operation; issue permits in lieu of any other individual state or local agency authority; and manages an environmental and safety oversight program of project operations to ensure compliance with certification conditions.

The environmental review process coordinated by the Council provides opportunities for public and governmental agency participation through hearings and the review of the application and environmental documents.

One-stop siting provides certainty to applicants that all siting requirements will be managed through a coordinated process. State and federal environmental review processes can be managed cooperatively to include the development of joint environmental impact statements and conducting combined hearings.

By providing a comprehensive environmental review process for major energy facilities, EFSEC helps ensure that new energy facilities are sited with a minimal effect on the environment.

IV. SERVICES

A. Siting New Projects

EFSEC serves potential applicants seeking certification of large energy facilities within Washington. The Council's process provides applicants a fair and timely review of energy facility proposals.

The Council also serves state and local agencies and tribal interests. These groups customary concerns and responsibilities are addressed during reviews and public hearings under the "one-stop shopping" provision of EFSEC's statute. During recent application reviews, representatives from 10 counties, five cities, and three port districts have become members of the Council to review applications to site three combustion turbine projects and one intrastate oil pipeline.

In addition, EFSEC interacts with numerous federal agencies regarding facility siting, licensing, compliance monitoring, and nuclear emergency planning.

EFSEC also serves members of the public and organizations that may be especially interested in energy facility decisions. The concerns raised by these groups and individuals must be considered during EFSEC's site evaluation process.

Throughout the siting process there are opportunities — via a rigorous schedule of public hearings and environmental study — for interested parties, including governmental agencies, to participate in the review and provide written or oral information on a proposed project.

B. Regulating Certificate Holders

Current site certification agreements are in force for the five nuclear plants owned and operated by the Washington Public Power Supply System (Supply System) — WNP-2 in operation; WNP-1 and -3 in termination status; and WNP-4 and -5 in stages of decommissioning. In addition, active site certification agreements are currently in place for three combustion turbine projects that have not yet been constructed. Council activity will continue to focus on ensuring compliance with certification conditions at WNP-2 to include: 1) protection of state and federal environmental and public health and safety standards; and 2) maintaining a capability for offsite agencies to respond in the event of a radiological accident. The Council administers contracts with state and local agencies totaling approximately $2.7 million to meet its goals for environmental and nuclear safety oversight at WNP-2 and the other Supply System project sites.

The Council also maintains oversight authority for site restoration activities at the four Supply System projects that have been terminated. For the Satsop nuclear project site, legislation adopted in 1996 provides for the transfer of portions of the site to local governments for economic development purposes. The Council will work with the county agencies and the Supply System to ensure an orderly transfer of responsibilities to local government.

V. RESULTS

The Council has recently completed processing of applications filed for three combustion turbine natural gas-fired projects: the 838 Megawatt (MW) Northwest Regional Power Facility (NRPF) in Creston; the 438 MW Satsop Combustion Turbine (CT) Project near Elma; and the 450 MW Chehalis Generation Facility in Chehalis. On
May 21, 1996, Gov. Lowry approved the Satsop CT Project by executing a Site Certification Agreement between the state and the sponsor, the Supply System, setting forth the terms and conditions for constructing and operating the project. On Sept. 19, 1996, Gov. Lowry signed the site certification agreement for the NRPF project. The site certification agreement for the Chehalis Generation Facility was recently remanded to the

Council for additional deliberations regarding the use of water by the facility and the discharge of waste water from the plant.

In February 1996, the Council received an application for a major cross-state pipeline project, Olympic Pipe Line Company's 227-mile petroleum products pipeline from Woodinville in King County to Pasco in Franklin County. Initial processing activities have included the selecting of an independent consultant to review the application and prepare a joint state/federal Environmental Impact Statement (EIS); securing the participation of 13 new local government members from counties, cities, and port districts directly affected by the proposed project; initiating the review of the project for consistency with local land use plans and zoning ordinances; and establishing the procedures and determining who will participate in the hearing phase of the review.

VI. CHALLENGES

The primary siting challenge currently facing the Council is the processing of the Olympic Cross Cascade Pipeline Project application. The Council anticipates extensive work on this project during Fiscal Year 1997 and into the next biennium, with completion of the siting process probably occurring in Fiscal Year 1998. The Council will work to complete the state's siting process, in addition to coordinating the preparation of a joint EIS involving a number of federal agencies.

The Council's regulatory interests will continue to be directed at ensuring that the WNP-2 nuclear plant is operated safely to ensure protection of the environment and the public health and safety. At the same time, the Council will actively work with the Supply System and local governments to see that restoration and/or transfer requirements are met.

Finally, rapid changes in the electric industry discussed in Section 2 may require revisiting the scope of EFSEC's jurisdiction. The legislation was enacted in an era where regulated utilities were the sole purchasers of power and were subject to significant regulatory and public oversight on cost control, need for power, reliability standards, etc. As this structure unravels, some argue that there is no longer adequate accountability over decisions to build new transmission or power plants. EFSEC currently has no, or very limited, jurisdiction over the following types of facilities:

- Non-thermal, i.e., wind or solar, generating facilities;
- Generating facilities under 250 MW, an increasingly large component of new power plants;
- New transmission facilities that are not associated with a large-scale generating plant; and
- Large, above-ground natural gas storage facilities for gas that has not been transported over marine waters.

Whether this implies a need for changes to EFSEC's jurisdiction is a matter that may be up for debate before the Legislature in the next two years. Another concern that has been expressed about the Council's statute is that the preamble language inappropriately establishes that there is "a pressing need for increased energy facilities" in Washington. It has been the Council's experience that the presumption of need language has led to some unnecessary complications in the siting process that could be avoided by more neutral language.

Appendix A
Summary of Utilities in Washington State with Market-based Prices

This summary is based on a compilation performed by Community, Trade and Economic Development (CTED) Energy Policy staff in connection with its participation in the Comprehensive Review of the Northwest Energy System. In fall hearings before the Housing Committee on Energy and Utilities, the Committee heard testimony from five utilities that were offering or planning to offer retail choice or market-based prices to its customers. This report builds on the information presented at that hearing and adds some additional information based on telephone conversations with eleven utilities throughout the state.

COMPILATION APPROACH

CTED first decided to undertake a compilation of market-based rate programs when it became apparent through news reports and other information that the number of utilities across the state that were offering market-based rates was growing from a small handful to a discernible ground swell. While a few utilities began experimenting with market-based rates in late 1995 or early 1996, the pace has picked up during the Fall of 1996 after publicly owned utilities finalized negotiations with Bonneville Power Administration (Bonneville) for diversification of power supplies.

CTED targeted programs falling into one of three categories, defined as follows:

- *Direct access*: under this program, the utility is only a provider of wires service and the energy is sold directly to the end use customer by a marketer or power producer.
- *"Virtual" direct access*: under this program a utility sells energy to its end-use customer at a rate that is based on an actual or an indexed market cost. It then charges a separately stated distribution or access fee to cover utility costs. The utility remains the nominal seller of power. While the program is not direct access in the sense that the end use customer contracts directly with the provider, the costs are the same (except perhaps for tax implications not addressed in these comments).
- *Quasi-wholesale*: under this program, the utility sells power to a "wholesaler" that is in fact a subsidiary or division of the end user.

For simplicity, we generally refer to all of these programs as market-based rate programs except where it is necessary to draw distinctions. Excluded from the list are utilities that reduced their rates to particular classes based on new cost-of-service studies or considerations of competitiveness. While the latter group of utilities may have taken advantage of market access to reduce rates to their customers, they did not base their rates directly on market prices, and have not unbundled the energy portion of their rates from the distribution function.

The compilation is *not* based on a comprehensive survey of Washington utilities, but rather on press reports, testimony at legislative hearings, rate filings with the Utilities and Transportation Commission, and individual reports. Therefore, it is possible, indeed likely, that the compilation is not complete. The approach we took was in two phases. We first reviewed regional press reports dating back one year (i.e., to October 1995) concerning utility market-based rate, retail access, or quasi-wholesale access efforts. These included trade press reports (i.e., *Clearing Up*), local press, regulatory proceedings, and the testimony of several utilities at a recent hearing before the House Energy and Utilities Committee.

CTED Energy Policy Staff followed up each such report with a phone call to the utility. There was a telephone or personal conversation with all eleven utilities that were reported as negotiating, considering, or implementing market-based rates or retail access. While no utility specifically asked to keep the results of the conversations confidential, we made an internal decision to summarize the results of the conversations in order to avoid singling out particular utilities or customers for attention. However, since the reports of market-based rates all originated in the press, they can be easily verified through the same means CTED used.

For each utility offering market-based rates, we asked a number of questions. These included:

- the total load eligible for the rates;
- eligibility criteria;
- number of end users currently taking advantage of the program;
- pricing of the energy (commodity) component of service;
- who was providing the energy (commodity) service;
- pricing of access or distribution fee; and
- components of the access fee.

COMPILATION RESULTS

Profile of Utilities Offering Market-based Rates

Of the eleven utilities we contacted, 10 confirmed that they were offering market-based rates, quasi-wholesale access, or direct access. The 11th utility did not meet the definitions set out above.

Six of the utilities offering market-based rates congregate in the I-5 corridor, with the remaining four spread throughout the state. Two are privately owned utilities, and eight publicly owned. Size and resource mix were not clear identifying factors. However, the presence of large industrial load was clearly common to all 10.

All eight of the publicly owned utilities were taking advantage of the diversification opportunities provided by Bonneville in its recent round of power sales contract negotiations to make market-based rates available. That is, utilities who chose to diversify 10 percent, 15 percent, or more of their load by purchasing from providers other than Bonneville chose to use those options to gain access to the market directly on behalf of their eligible customers. This fact becomes important when we consider the likelihood of expanding retail access to other end use customer classes.

Eligibility Criteria

All 10 utilities currently offer market-based rates *only to large industrial customers*. Five of these offered rates based on a minimum size, which ranged from .75 average megawatts (aMW) load to 10 aMW. The other five negotiated rates with individual large customers. The total eligible load among the 10 utilities is about 1,005 aMW. Of these, a small amount (24 aMW) represent direct access eligibility; approximately 20 aMW of load is eligible for quasi-wholesale transactions; and the remainder is "virtual" direct access.

Two utilities are actively considering expanding eligibility to other classes early in 1997. If this occurs, total eligible load will grow about 1,080 aMW, for a total of 2,165[1]. Of this figure, about 380 aMW would be virtual direct access and about 800 aMW would be direct access.

Load currently on market-based rates

Customers with at least 610 aMW of load were actually taking advantage of market-based rates as of the time of the telephone contacts (early to late October 1996). It is likely that the number has grown since then. The total number of customers who have signed on is about 30. Thus, the average size of the subscribing customer is approximately 20 aMW.

Basis for determining energy component of rate

Of the 10 utilities with programs, seven base the energy component of the price on actual contracts negotiated with other utilities, brokers, or marketers. These contracts could be negotiated by the end use customer, by the utility, or jointly. The other three utilities base the energy component of the rate on an index — either California-Oregon Border (COB), or the Dow Jones mid-Columbia index.

Basis for determining access fee

All 10 utilities charge an access fee, distribution fee, or the like to cover distribution costs. Here we found a very large disparity among the utilities in how they calculated and priced this service. The range of access fees is from 2 mills (two tenths of a cent) to over 22 mills. The disparity was generally, but not exclusively, related to the types of services included in the access fee. Because of the disparity, and its implications, we will discuss this aspect of the rate in some details.

The most “bare bones” access fee simply charges for the actual wire's maintenance cost to serve the individual eligible customer. Since many of these customers own their own facilities and are in close proximity to Bonneville transmission, the resulting access fee is small indeed, on the range of 2 mills.

In the next range of access fee prices are utilities that average the cost of access over eligible customers, regardless of their actual proximity to transmission. Utilities using this method generally charge approximately four mills, but the charges range as high as 12 mills.

The next grouping involved utilities that include components of fixed cost in the access fee. These could include administration and general expenses, dues, power management, etc.

In addition to including non-power related fixed costs in the access fee, one utility is recovering some or all stranded power costs in the fee.

Finally, two utilities explicitly recover some demand side management (DSM) program costs, renewables, and low-income support costs in the access fee. But one of these is recovering only debt costs associated with existing DSM installations, not the cost of running any ongoing or new programs. Only one of the 10 utilities charges an access fee that explicitly covers DSM and low-income support, based on an estimate of future utility commitment to these programs.

Three utilities used “top down” approach for calculating the access fee. That is, they removed the energy component of an existing tariff and used the remaining portion of the rate as a reasonable proxy for the utility’s core distribution services. Under this approach, the resulting access fee represents the average historic cost of providing all but commodity services. Thus, it likely includes components of all the applicable costs and services described in the previous paragraphs, at historic levels. One should not conclude, however, that this means DSM, renewables, and low-income support are at historic levels for these utilities. Publicly owned utilities historically paid for most DSM and renewables via their Bonneville rates. Since Bonneville’s funding has dropped significantly, utilities that are charging only their own historic levels have not picked up any regional responsibility for continued DSM and renewable support.

Finally, taxes are not included in any utility’s access fee, but are added onto the rate as a separate charge.

The table below summarizes the types of costs that are included in the access fee, and how many utilities include these costs.[2]

Costs and Services Covered by Access Fee	Number of Utilities
“Top down” — all historic services at historic levels	3
Wires and facilities	
Per customer	2
Averaged for class or all classes	4
Administrative and general	6
Stranded cost	1
Demand side, renewables, low-income	
Historic levels	1
Budget based	1

CONCLUSIONS

More work and research needs to be done before drawing many firm conclusions from this compilation. As noted, it is not comprehensive, nor statistically significant. Other utilities will no doubt use the examples of these pioneers in designing their own programs. However, the compilation does allow us to make some observations that could be useful to the Legislature as it considers the impacts of retail access on Washington citizens, the economy, and the environment.

First, retail competition is alive and well in Washington State. A recommendation to "prepare for retail competition" sometime around the turn of century ignores the fact that it has already occurred here.

Second, utilities are exercising imaginative and innovative efforts to tailor their service to the needs of their customers. CTED believes that the ability of customers to get exactly the type of service they want, negotiate the amount of price risk they want to assume, and undertake some of the power acquisition responsibilities on their own is where the true benefits of retail competition are strongest. Utilities and end users alike will benefit from the experimentation and variety of approaches employed in these early efforts.

Third, the extent to which significant retail competition will be meaningful for commercial and residential classes is unclear, without clarification of Bonneville's ability to recover stranded costs. Under the just-completed power sales contract renegotiations, Bonneville only allowed a portion of load to diversify without paying an exit fee. Once those diversification benefits are passed along to end use customers in one class, there is a limited amount left for other classes. Some of the utilities included in the compilation passed along 100 percent of diversification benefits to industrial load. Others have retained a portion for their remaining classes.

Fourth, the results of the compilation suggest that funding for public purposes such as conservation, renewables, or low-income support is jeopardized under market-based price programs. Only one utility of the 10 we interviewed has made a commitment to funding public-purpose budgets via an access fee that applies to customers with market-based rates. Nearly half of the utilities fund no public purposes at all through access fees, and five continue funding at historic levels.[3] This implies that funding levels will either fall significantly short of the amount needed to support cost-effective programs identified in the Draft Northwest Power Plan, or remaining classes will pick up a disproportionate burden.

Fifth, and finally, the vast disparity among access fees charged by utilities is potentially alarming. The disparity is due largely, but not exclusively, to the types of services and costs included in the access fee. To the extent that some of these costs are fixed, and are not recovered by one class of customers, the disparity between industrial rates and other class rates will increase. When the disparity is wider for some utilities than for others, there is a potential for instability and customer dissatisfaction.

---

[1] These estimates are based on reported 1994 load for these two utilities. The actual eligible load may vary.
[2] For the purposes of this chart, one utility was considered two distinct programs. The first, available only to large industrial classes, charges only a wire and facilities charge. The other, available to all other classes, uses a "top down" approach.
[3] The total here is eleven because one utility treats residential and commercial customers differently from industrial customers and therefore was counted as two programs in this tally.

Appendix B
Comprehensive Review of the Northwest Energy System: Preamble and Summary of Recommendations to Governors

I. PREAMBLE

The 20 members of the Steering Committee of the Comprehensive Review of the Northwest Energy System have worked for 11 months to develop the recommendations contained in this final report. These recommendations represent a consensus of 13 of the 14 voting members of the Steering Committee, a consensus that has been achieved only by compromise and sacrifice on the part of each of the members on the Committee. The 14th voting member acknowledges the significant progress made in many areas but does not believe that sufficient progress was made on issues related to fish and wildlife to constitute a real consensus.

We, the members who voted with the majority, support the report and will work to educate and persuade others, but our support here does not commit all of the groups we represent. These compromises, as difficult as some may find them, are worth making for a simple reason: we have more to lose as a region than we have to gain as disparate interests.

There is still much work to be done. This final report is specific in some areas and general in others. More detail and further refinement will be required to convert these recommendations into the contracts, legislative bills, rules and policies that will implement them.

As regional interests work further on these restructuring initiatives, there are bound to be disagreements and new issues to be resolved within the outlines of these recommendations. However, we believe that the principles outlined here must remain if any regional consensus is to be hoped for. With a consensus position, the Pacific Northwest has the best hope of retaining the benefits of the federal hydropower system and transitioning to a competitive electricity system that will maximize benefits for all consumers in the region. The work embodied in this report will not easily be replicated if the regional consensus is destroyed by unilateral actions of any party.

Finally, the Steering Committee recognizes that electric utility restructuring is evolving rapidly and that efforts in Congress and the states almost certainly will change some of the assumptions underlying this report. Although our recommendations may not reflect the ultimate end-state of this restructuring, we nevertheless believe that it does reflect a workable outcome in itself and a very positive step in this process.

II. SUMMARY OF RECOMMENDATIONS

The main features of the recommendations of the Steering Committee of the Comprehensive Review of the Northwest Energy System are summarized in the following sections. More detailed discussion of the recommendations is presented in the subsections of this appendix. For purposes of organization, this report is presented in six main topic areas: federal power marketing; governance of the Columbia River system (a related topic to federal power marketing); conservation, renewable resources and low-income energy services; consumer access to the competitive market; transmission; and future power system roles for a four-state regional body. Issues related to federal power marketing; conservation, renewable resources and low-income services; consumer access to the competitive market; and transmissions were analyzed and discussed in work groups during the review process. Although described as distinct parts, this is an integrated set of recommendations, the parts of which are interdependent.

A. FEDERAL POWER MARKETING — THE BONNEVILLE POWER ADMINISTRATION

The Steering Committee's goals for federal power marketing are to: 1) align the benefits and risks of access to existing federal power; 2) ensure repayment of the debt to the U.S. Treasury with a greater probability than currently exists while not compromising the security or tax-exempt status of Bonneville's third-party debt; and 3) retain the long-term benefits of the system for the region. The recommendation is also intended to be consistent with emerging competitive markets and regional transmission solutions. The mechanism proposed to accomplish these goals is a subscription system for purchasing specified amounts of power at cost with incentives for customers to take longer-term (15 to 20 year) subscriptions. Public utility customers with small loads would be able to subscribe under contracts that would accommodate minor load growth. Subscriptions would be available first to regional customers in a specified multi-part priority order, starting with preference customers, then the direct service industrial customers of Bonneville and the residential and small farm customers of those investor-owned utilities currently participating in Bonneville's residential exchange, followed by other regional customers. Non-regional customers could subscribe after in-region customers. Within each phase of the subscription process, longer-term contracts would have priority over shorter-term contracts if the system is oversubscribed.

Longer-term subscribers would have the right to purchase power at cost for the term of the contract. While the cost of the power from the federal system is currently somewhat above market prices, the costs are generally expected to be below market prices in the future. Short-term subscribers also get the right to purchase power at cost. If they wish to be assured the ability to renew their contracts at cost, they must pay an option fee for the term of their contracts to compensate the U.S. Treasury for the risk of shorter-term contracts. A sliding-scale option fee, ranging between two mills per kilowatt-hour for a five-year contract to zero mills for a 15-20 year contract has been proposed.

The longer-term subscribers assume more risk than current Bonneville customers from the effects of year-to-year variations in weather, future power system cost increases and changes in market conditions. For example, if we were to experience lower than expected market prices that are below Bonneville costs for an extended period of time, the subscribers would still be obligated to pay Bonneville's costs. At the end of their subscription period, short-term subscribers would be able to let their subscriptions lapse and buy at market prices. If they let their subscriptions lapse, however, they would not be able to buy at cost in the future, should that become desirable.

The Steering Committee recognizes Bonneville's existing fish and wildlife obligations and intends that none of its recommendations affect existing trust obligations or treaty rights. The Steering Committee further recognizes that the region will need to provide most of the required fish and wildlife funding, but supports assistance and cost sharing by the federal government. The Committee recommends detailed multi-year fish and wildlife budgets be developed in government-to-government consultations by federal, state and tribal authorities. These budgets would be incorporated into Bonneville rate projections, allowing shorter-term customers certainty regarding fish and wildlife costs. If market prices are above costs, the Treasury would share in these benefits by getting some percentage of the difference between market prices and the cost. The Treasury's share would be applied to accelerate repayment of the federal debt.

Competition raises the possibility of stranded costs — previously incurred fixed costs that cannot be recovered at market prices. If successfully implemented, the subscription system should greatly reduce the possibility of Bonneville experiencing any stranded cost. However, if unmitigable stranded costs remain, a mechanism for recovery of those costs will be required.

Subscribers may resell power in cases of loss of load and/or to the extent allowed by existing law. Other commercial transactions by the subscriber would not disqualify the purchase of federal power. The benefits of purchases for residential and small farm customers of exchanging investor-owned utilities should be passed on to end users.

The recommendations would have the effect of disposing of much if not all of the firm power available from Bonneville on a long- or intermediate-term basis. The fact that most of Bonneville's power would be subscribed at cost would limit Bonneville's market role. Any remaining firm power and other power products would be sold at Federal Energy Regulatory Commission (FERC)-regulated prices or at competitive prices, where

FERC determines that competitive markets exist. To the extent consistent with its obligation to repay Treasury, Bonneville should return to its historic role of marketing power generated by the Federal Columbia River Power System, rather than becoming an aggressive marketer of products and services in the emerging competitive power market. Bonneville should develop a quantitative marketing plan. The plan should be presented to a transition board reporting to the Governors.

In addition, it is recommended that Bonneville would not acquire resources to serve its customers' load growth except on a direct bilateral basis where the customer takes on all the risk of the acquisition. Similarly, it is proposed that Bonneville would not sell directly to new retail loads, beyond the existing direct service industry loads, although it may sell through intermediaries whose transactions would be subject to state or local jurisdiction.

The Committee recommends that the governors of Idaho, Montana, Oregon, and Washington appoint a transition board to oversee implementation of these and other recommendations. In particular, the board should periodically determine whether the subscription process is making adequate progress or whether another approach is necessary.

B. COLUMBIA RIVER SYSTEM GOVERNANCE

The Steering Committee concluded that we cannot expect to achieve both the degree of cost stability the electricity industry requires to maintain the benefits of the Columbia River power system for the region and achieve sustainable fish restoration unless we ensure predictability, accountability and effective governance for the fish and wildlife interests of the river. In short, an effective conclusion of our effort is not possible without an improved system of river governance that pursues fish restoration as a high priority.

The Steering Committee was asked by the Northwest governors to focus on the restructuring of the electricity system and to address the financial stability of the federal power system. The Committee has done our best to recommend changes to the federal system that accomplish that goal. It fully recognizes that there are other important, related issues and decisions, including those affecting fish and wildlife, that must be resolved before a truly comprehensive package can be achieved.

The Steering Committee considered a number of matters related to the governance of the river and the power system. The role of the Northwest Power Planning Council (NWPPC) in river governance was not addressed, but needs to be. The Governors should hold the Council or its successor accountable for ensuring that the region is making the most cost-effective use of fish and wildlife funding. River governance is a fundamental part of any effective response to changes in the electric utility industry. Until governance deliberations move forward through a government-to-government consultation among federal, state and tribal authorities, the prospects for a consensus on the regional response to utility restructuring are diminished and controversial. The Steering Committee requests the governors to initiate a broadly based discussion of improvements in river system governance that would provide more effective decision-making for this complex ecosystem and all of its competing uses.

C. CONSERVATION, RENEWABLE RESOURCES AND LOW-INCOME ENERGY SERVICES

The Northwest electric utility industry has a long and successful history of developing cost-effective conservation and supporting the development of renewable electricity sources, such as wind, geothermal and biomass energy. In addition, the utilities have played a major role in delivering weatherization to low-income households and helping low-income households with their energy bills. Competitive pressures, however, are expected to make significant changes in the ways utilities carry out these activities in the future. The goal of the Steering Committee's recommendations is to provide for maximum local control in the implementation of conservation, renewables and low-income energy services, while establishing an effective minimum standard that ensures stable funding for these purposes.

To ensure that cost-effective conservation, renewable resource development and low-income weatherization are sustained during the transition to competition and beyond, the Steering Committee recommends that by July 1, 1997, and annually thereafter for a period of 10 years, three percent of the revenues from the sale of electricity services in the region ($210 million in 1995) be dedicated to those purposes. After 10 years, this commitment should be re-evaluated. Three percent of revenues is roughly 65 percent of what was spent for these purposes by the region's utilities and Bonneville in 1995.

The Steering Committee recommends that by July 1, 1999, each of the Northwest states enact legislation that ensures that all electric utilities operating within its borders are meeting the minimum standard for investment in the development of conservation and renewable resources and provision of weatherization and energy-efficiency services to low-income consumers. Utilities should demonstrate compliance with the minimum standard by July 1, 1999. Public utilities may satisfy the standard in aggregate. If this minimum standard is not being met, the legislation should provide for the assessment of a uniform system benefits charge that ensures the collection and investment of funds for these purposes. Due to the rapid emergence of competitive pressures, the Committee strongly recommends prompt legislative action. Legislation implementing these requirements should be implemented simultaneously with open retail access.

The Steering Committee proposes that between two-thirds and five-sixths of the funds be retained by local distribution utilities to carry out locally initiated cost-effective conservation, low-income weatherization and energy-efficiency services and renewable energy projects. Conservation projects implemented and funded by large consumers should be credited against the local conservation target, not including low-income energy-efficiency services. Local utilities would also offer, or allow other electricity service providers to offer, "green" power to their consumers — power from renewable assistance energy sources. The Steering Committee recommends that utilities maintain their current level of low-income energy assistance until states adopt alternative mechanisms for providing these services. The report recognizes and affirms the energy system's historic role in providing energy assistance and proposes that states now provide this assistance by establishing a "Universal Electrical Service Fund" to provide energy bill assistance. This fund could be supported by federal Low-Income Home Energy Assistance Program (LIHEAP) funds, state or local government funds, other funds and/or by a retail distribution system access fee or meters charge.

Some conservation and renewable resource activities benefit from regional planning and coordination. Consequently, it is proposed that between one sixth and one third of the funds be used by a regional non-profit entity with utility, government, consumer and public interest membership. Its functions would be to bring about changes in the markets for targeted energy-efficiency products and services that will improve their market share; to plan and contract for research and limited demonstration of renewable energy technologies, and to support the development of several megawatts annually of renewable generating capacity. A regional technical forum would be established to track regional progress toward the achievement of regional goals and provide feedback and suggestions for improving the effectiveness of conservation and renewable resource development programs. Funding for these activities should be collected in part through Bonneville wholesale rates to the extent regional firm loads are served by power from Bonneville.

How the funds are collected is a matter for state or local decision, as appropriate. The Steering Committee expects that methods of collection that are competitively neutral and affect all participants in the market equally will be found to be preferable.

D. CONSUMER ACCESS TO THE COMPETITIVE MARKET

The goals of the recommendations on retail markets and customer choice are to encourage a more efficient power system, lower electricity costs, increased product choice and greater product innovation for all consumers. These goals were adopted subject to a commitment to maintain the reliability and safety of the electrical power system. The Steering Committee concluded that this goal could best be accomplished by putting in place a competitive electricity market that is driven by consumer choice. However, there is concern that the benefits of a competitive market may flow unevenly to different classes of consumers and that some small consumers may even suffer harm. The report recommends safeguards intended to help mitigate these concerns.

The Steering Committee recommends that regulators and local utility boards and commissions offer open access for all customers that desire it no later than July 1, 1999. The Committee recognizes that some of these regulatory bodies may choose to phase in full retail access. In these cases, a similar phase-in of the recommendations on conservation, renewable resources and low-income energy services may be effected.

Direct access may occur prior to July 1, 1999, however, for direct retail access to be implemented promptly, several activities must be accomplished. These include the identification of any stranded costs and, if any stranded costs are determined to exist, the creation of a stranded cost collection mechanism; unbundling and cost-based pricing of delivery services; pilot programs to explore aggregation for small commercial and residential customers; the exploration of market index pricing options for residential and small commercial customers; and implementation of public purposes funding, energy assistance funding and consumer protection mechanisms consistent with this report's recommendations.

To achieve a competitive retail electricity market requires separation of the distribution and electricity marketing functions of current retail utilities. This is necessary to ensure that consumers will have unimpeded access to alternative electricity suppliers, and vice versa, over the wires of the distribution utility. The distribution utility would continue to be a regulated monopoly responsible for the reliable and safe delivery of electricity from electric service companies to consumers over local distribution wires. Electricity service companies will offer a variety of electricity products and services (e.g., firm or interruptible power, power from renewable resources, peak or off-peak power, fixed or spot-market prices) to consumers on a competitive basis and may, in fact, offer other products unrelated to electricity markets. The electricity services portion of current integrated retail utilities could compete in this market if the distribution utility function is sufficiently separated from the electricity services business to ensure that control of distribution is not used to advantage the electricity services business.

Putting such a competitive market in place will require a significant transition and ongoing market maintenance procedures. There is a danger that, until competitive markets have fully developed for all consumers, some of the benefits of increased competition may be realized primarily by large consumers at the expense of small consumers. Therefore, the Steering Committee calls for active government oversight of the transition and active ongoing programs to facilitate and encourage the development of meaningful market access for all consumer classes and to prevent unwarranted cost shifts among consumer classes. Specifically, the policy calls for licensing of new electricity service providers, applicability of consumer protection laws, formal complaint processes, consumer information programs, and a "provider of last resort" to ensure continued affordable service to all consumers. To further minimize cost shifts to small consumers, policies should be adopted to provide utilities a fair opportunity to recover costs of previous investments that may be stranded by the opening of the market. This is viewed as a transitional problem only, and incentives must be included for utilities to mitigate any stranded costs they potentially face.

III. TRANSMISSION

Transmission is the "highway system" over which the products of electrical generation flow. If there is to be effective competition among generators, transmission facilities should be operated independently of generation ownership. An independent grid operator (IGO) regulated by FERC with broad membership, including Bonneville and the region's other major transmission owners, is proposed as a means of ensuring independence of transmission operation and improving the efficiency of transmission operation. An IGO should also have clear incentives to maintain reliability and encourage efficient use of the transmission system.

The independent operation of Bonneville's transmission facilities is particularly important to effective competition among generators in this region because Bonneville's facilities make up a large part of the regional transmission system. To ensure this independence, it is recommended that Bonneville be legally separated into two organizations – a power marketing organization to market the power from the federal power system and a transmission organization to carry out the transmission functions. The separation of these functions should be structured so that it does not jeopardize or diminish the legal obligation and ability of Bonneville to meet fish and wildlife and other obligations. A separated federal transmission owner (e.g., the Bonneville Transmission Corporation) could lease its assets to an independent grid operator, or could be an independent grid operator and operate other participants' assets if FERC and the other participants agree.

Legislation will be required to accomplish these goals. While legislation is under consideration, Bonneville should move quickly to achieve as much administrative separation as possible, and to participate in efforts to form an independent grid operator that could operate both federal and non-federal transmission assets.

IV. FUTURE POWER SYSTEM ROLE FOR A FOUR STATE REGIONAL BODY

When the Northwest Power Act was passed in 1980, the authors contemplated an extended time of electricity shortage and the need for increasingly costly large-scale power plants. The NWPPC was established with two representatives from each of the Northwest states (Idaho, Montana, Oregon and Washington) to provide the states and the public a role in determining the region's future need for electricity and how that need could best be met. The Council was also charged with furthering the goals of: encouraging conservation and renewable resources; helping assure an adequate, efficient, economical and reliable power system; providing environmental quality; and protecting, mitigating, and enhancing the fish and wildlife of the Columbia Basin.

The NWPPC has been credited with many improvements in electricity planning. However, in an era in which market forces will play the primary role in determining what plants are built and what can be charged for their output, the Council's resource acquisition planning role is no longer relevant. The Steering Committee believes, however. that the remaining goals are still important to the citizens of the region. The issue is how they are to be achieved in the context of a competitive market.

There is much that is unknown about the competitive future we are about to embrace. As the Northwest transitions toward a competitive electricity industry, there are roles that the region would want carried out by a regional body. These roles do not involve resource acquisition planning, regulation or implementation. They do involve monitoring and analyzing the transition to a competitive electricity market and informing policymakers and the public. This will help ensure that the transition to a competitive market is accomplished efficiently and fairly throughout the region and that the public values the Northwest has sought from its power system are preserved and enhanced.

These roles include:

Conservation and Renewables — working with regional interests to devise ways of overcoming market barriers, participating in market transformation activities, providing guidance in meeting the region's conservation and renewable goals and working with the regional technical forum to track regional progress;

The Competitive Marketplace — providing information, evaluation and analysis of the evolving marketplace to ensure full, fair and effective competition throughout the region; and

Public Participation and Involvement — informing and involving interested members of the public on matters that affect them, their environment and their economy.

The funding of NWPPC has been through a charge on Bonneville's rates. If federal legislation affecting the role of the NWPPC or a similar regional body is pursued, the question of the level and sources of the funding should be addressed.

NOTE: For a complete copy of Comprehensive Review of the Northwest Energy System - Final Report - Toward a Competitive Electric Power Industry for the 21st Century, contact Jim Middaugh, NWPPC, 851 S.W. 6th Ave. Suite 1100, Portland, OR 97204-1348; telephone: 800-222-3355. An electronic version of the report is available for downloading at www.newsdata.com/enernet.

Appendix C
Biographies of Comprehensive Review Steering Committee Members

Chuck Collins, Chair

Since 1981, Chuck Collins has been president of the Colsper West Corporation in Seattle, Washington. Prior to that he served as vice president and general manager at Polyform, U.S., Ltd.; transit director at Seattle Metro; and county administrator in King County. From 1981 through 1985 Collins was a member of the Northwest Power Planning Council (NWPPC), serving as chairman from 1984 to 1985. Currently, he is chairman of the State Commission on Student Learning and a board member for the Washington Dental Service, Inc.

Collins earned a bachelor's degree in philosophy from Gonzaga University in 1965, and a master's in public administration from the University of Washington in 1970.

Alvin Alexanderson

Alvin Alexanderson is the vice president for rates and regulatory affairs at Portland General Electric (PGE) Company. His responsibilities include least-cost planning and demand-side resource evaluation. He received his bachelor of science degree from Hillsdale College and his law degree from the University of Michigan School of Law. Alexanderson served as assistant attorney general for Oregon from 1972 to 1979, emphasizing economic regulation and antitrust law. He joined PGE in 1979 and has served as deputy general counsel, vice president of finance and president of Portland General Exchange, a power marketing affiliate.

His legal practice and his marketing and rates management experience covers a wide range of retail and wholesale pricing questions. Alexanderson frequently represents investor-owned utility associations in matters involving wholesale power and transmission pricing. He lives in West Linn, Oregon, with his wife and two children.

Rick Applegate

Rick Applegate is the West Coast conservation director for Trout Unlimited. Prior to that he spent eight years at the NWPPC as director of fish and wildlife. He has also worked for the Montana State Legislature, the Montana Constitutional Convention and the Environmental Quality Council. Applegate served as a minority staff director of a subcommittee of the U.S. Senate Judiciary Committee. He has a bachelor of arts degree in political science and history and a master's in environmental policy from the University of Montana.

Ken Canon

Since 1981, Ken Canon has represented Industrial Customers of Northwest Utilities (ICNU) as its executive director. ICNU represents its member's electric energy interests before the Bonneville Power Administration (Bonneville), the NWPPC, with individual utilities and in other forums. In addition, Canon is the managing director of the Association of Public Agency Customers, a subset of ICNU, and participates in Bonneville rate proceedings.

Prior to 1981, Canon represented industries in legislative and regulatory arenas as the assistant general counsel for Associated Oregon Industries. Canon graduated from Willamette University Law School and is a partner in the Canon & Hutton law firm. His partner, Mary Ann Hutton, represents the Northwest Industrial Gas Users.

Jim Curtis (ex officio member, October - December 1996)

Jim Curtis is the senior vice president for business services at Bonneville. Prior to this appointment, he served as the group vice president for financial services. Curtis will maintain his chief financial officer (CFO) responsibilities under the new organization. Curtis has worked at Bonneville since 1975, including 11 years in financial management. He has served as CFO for five years and has served as deputy power manager and deputy financial manager. His experience includes work on project financing, negotiation of power transactions, and regulatory compliance.

Curtis attended Oregon State University and Portland State University, receiving a bachelor's degree in 1972. He graduated from Northwest School of Law in 1979.

Jim Davis

Jim Davis is a commissioner on the boards of the Douglas County Public Utility District in East Wenatchee, Washington. He also is a fourth-generation wheat farmer. He holds a bachelor of arts degree in education from Eastern Washington University.

Bill Drummond

Bill Drummond is the manager of Western Montana Electric Generating and Transmission Co-op, Inc. in Missoula, Montana. The Cooperative provides power planning and conservation services for its seven members: six rural cooperatives and one tribal utility. Prior to joining the Cooperative in 1994, Drummond was the manager of the Public Power Council in Portland, an association of 115 publicly and cooperatively owned electric utilities in the Northwest. His educational background includes degrees in forestry from the University of Montana and economics from the University of Arizona.

Jason Eisdorfer

Jason Eisdorfer has served as legal counsel and energy program director of the Citizen's Utility Board of Oregon since joining CUB in 1994. He has represented the residential consumer in numerous rate cases before the Oregon Public Utility Commission and in utility integrated resource planning processes.

Prior to joining CUB, Eisdorfer was an attorney with the U.S. Department of Agriculture, Office of the General Counsel, and served an appointment as a special assistant U.S. attorney. Eisdorfer is a graduate of the University of Chicago, and received his law degree from the University of Oregon School of Law.

John Etchart

John Etchart is chair of the NWPPC. He has worked for the Burlington Northern Railroad in Fort Worth, Texas, where he was vice president for state government relations, and for communications and public affairs before that. Between 1984 and 1988, he worked for Burlington Northern, Inc., in Montana as vice president for government affairs. He also worked for the Northern Tier Pipeline Company, acquiring siting permits, and for the U.S. Department of Interior, as special assistant in the Bureau of Reclamation acting as liaison with water interests, environmental and development groups. Etchart holds a bachelor's degree in history and English from Carroll College and a master's degree in guidance and school psychology. He has also done graduate work in political science and law.

Bob Gannon

Bob Gannon is president and chief executive officer of the Montana Power Company, where he has worked for more than 20 years. Before joining Montana Power in 1974 as an attorney, he served two years as an assistant attorney general for the State of Montana, and another two and a half years as assistant U.S. attorney for Montana.

Gannon is a native of Butte, Montana. He graduated from the University of Notre Dame with a bachelor's degree in government. He earned his law degree in 1969 from the University of Montana and completed the Harvard University Advanced Management Program in 1989.

K.C. Golden

K.C. Golden recently became the assistant director of the Washington State Department of Community and Economic Development, Energy Service Area. He formerly was the policy director and executive director for the Northwest Conservation Act Coalition, a regional alliance of public interest groups, utilities and businesses working for a clean, affordable Northwest energy future. He was a Kennedy Fellow, obtaining a master's in public policy, at Harvard's Kennedy School of Government. Golden has also worked at the Tennessee Valley Authority, at Harvard's Energy and Environmental Policy Center, and as a raft and canoe guide in California and New England. He served on the Washington Energy Strategy Committee, the Energy Facility Siting Process Review Committee, the Washington State Building Code Council and the Washington Energy Options Steering Committee. Golden has a bachelor's from the University of California at Berkeley.

Charles Hedemark

Charles Hedemark is executive vice president and chief operating officer for Intermountain Gas Company. He is responsible for the utility's operations. Hedemark has been with the company for 30 years and has served in a number of capacities.

A Boise native, he is a graduate of the College of Idaho and has completed additional graduate work at the University of Utah and the executive program at Stanford.

Hedemark currently is president of the Northwest Gas Association and serves on the board of directors of Home Federal Savings & Loan (headquartered in Nampa), the Boise Chamber of Commerce and Blue Cross of Idaho. He is a past president of the Idaho Falls Chamber of Commerce, past chairman for Idaho Business Week, (a program of private enterprise education for high school students), past chairman of the United Way of Ada County and past president of the Boise School Foundation. He also served on the Idaho State Energy Policy Board.

Roy Hemmingway

Roy Hemmingway is Oregon Governor John Kitzhaber's salmon policy advisor. As such, he is responsible for coordinating state agency efforts to restore salmon and steelhead populations returning to both the Columbia River and to coastal streams. He also advises Governor Kitzhaber on matters relating to energy.

Hemmingway was previously in state government as a member of the NWPPC from 1981 to 1986. Before the Power Council, he helped write the Northwest Power Act. He also held the position of Deputy Public Utility Commissioner. He also has been a consultant working in the electric utility industry.

Hemmingway holds a law degree from Yale and a bachelor's degree from Stanford. He teaches utility law part-time at the Northwestern School of Law at Lewis and Clark College in Portland. He also serves as a board member, currently chairman, of the Riverdale School Board in the Portland area.

Mike Kreidler

Mike Kreidler is a Washington member of the NWPPC. Although an optometrist by profession, he served 16 years in the Washington Legislature -- four terms in the House of Representatives and two in the Senate -- and then was elected to Congress in 1992. He served one term representing the 9th District, which includes parts of King, Pierce and Thurston counties. In Congress, Kreidler served on committees dealing with energy, commerce and veterans affairs, and subcommittees on health, the environment and energy. He worked for 20 years with Group Health Cooperative of Puget Sound. Kreidler, a lieutenant colonel in the U.S. Army Reserves, holds a doctor of optometry degree from Pacific University and a master's degree in public health from the University of California at Los Angeles.

Todd Maddock

Tom Maddock is an Idaho member of the NWPPC. He worked for 32 years with the Potlatch Corporation in Lewiston, Idaho. From 1976 until the present he was director of public affairs at Potlatch for the Northwest region. His responsibilities included managing government affairs, media relations, employee communications and community relations. He has also been the principal lobbyist for Potlatch at the state level and with the Idaho congressional delegation. Maddock has a bachelor's degree in forestry from Purdue University and has participated in a graduate fellowship for research and study of forest economics at Purdue.

Sharon Nelson

Sharon Nelson is chair of the Washington Utilities and Transportation Committee. She was born in Erie, Pennsylvania, received a bachelor's degree from Carlton College, a master's in teaching from the University of Chicago, and a law degree from the University of Washington. Nelson has been a school teacher (1969-1973); staff council of U.S. Senate Commerce Committee (1976-78); legislative counsel to Consumers Union of United States (1978-81); private law practice (1982-83); staff coordinator for Joint Select Committee on Telecommunications of the Washington State Legislature (1983-85); assumed chairmanship of the Utility Commission on February 11, 1985, and her current term ends January 1, 1997.

Walt Pollock (ex officio member, January - September 1996)

Walt Pollock accepted the position of senior vice president for municipal services at Portland General Electric Company as of November 1, 1996. He was formerly the group vice president for marketing, conservation, and production as part of a major competitiveness and reinvention initiative at Bonneville. Pollock has agency executive responsibility for developing and implementing Bonneville's marketing plan, developing product and pricing policies, establishing rates and establishing policies and strategic direction.

Prior to his current position, Pollock was assistant administrator in the office of power sales; assistant power manager; and, in 1979 when he first started with Bonneville, he served as head of the then newly formed energy conservation section.

Pollock is a native of the Northwest, having grown up in Vancouver, Washington. He attended the University of Washington, earning a degree in chemical engineering.

John Saven

John Saven is executive director of Northwest Requirements Utilities, which includes approximately 40 utilities, located in six states, that are full requirements customers of Bonneville. These utilities are primarily small and rural, and may have significant agricultural electrical loads. Saven also provides executive staff support to two organizations: Northwest Irrigation Utilities and the Non-Generating Public Utilities Group.

As a consultant, Saven focused on financial analysis in the public sector. He served as deputy superintendent of finance and administration for Seattle City Light from 1983 to 1992. Prior to that, he was budget director for the City of Seattle. He obtained a bachelor of science degree from Syracuse University in 1970, and a master's degree in public administration from the University of Washington in 1972.

Rachel Shimshak

Rachel Shimshak is the director of the Renewable Northwest Project, a project launched in 1994 by a coalition of environmental groups, energy developers and public interest organizations to focus on the implementation of cost-effective, workable, renewable technologies. Before her move to the Northwest, Shimshak was the policy director for the Massachusetts Division of Energy Resources. Prior to that, she served as legislative director for the Massachusetts Public Interest Research Group. She began her advocacy career in 1979 working for Public Citizen's Congress Watch, Ralph Nader's watchdog group on Capitol Hill. She graduated from the University of Oregon.

Brett Wilcox

In 1985, Brett Wilcox founded Northwest Aluminum Company, a 90,000-ton per year primary aluminum smelter, and Northwest Aluminum Specialties, Inc., a state-of-the-art billet and forging stock producer. In addition to being the president and owner of these two companies, he is active in a number of other real estate and business ventures.

Prior to 1985, Wilcox was the executive director of Direct Services Industries, a trade association of 10 large aluminum and other energy intensive companies that purchase electricity directly from the Bonneville. He was an attorney in Seattle, concentrating his practice in energy and general business matters.

Wilcox graduated from Princeton University, with a degree in public affairs in 1975. He received his law degree from Stanford Law School in 1978.

Gary Zarker

Since 1994, Gary Zarker has been superintendent of Seattle City Light. Prior to that he served as department director for the Seattle Engineering Department; council member for the Metropolitan Services Department; acting deputy mayor for the Seattle mayor's office in 1986; and held various positions at the Office of Management and Budget between 1979 and 1986. Zarker graduated in 1970 from Grinnell College with a degree in liberal arts, and in 1992 from Harvard University, Kennedy School of Government.

Appendix D
Energy Strategy Recommendation Status as of April 1996

<table>
<tr><th colspan="3">TRANSPORTATION CHALLENGES</th></tr>
<tr><th>Energy Strategy Recommendations</th><th>Agencies Involved as of 7/1/96</th><th>Status</th></tr>
<tr><td colspan="3">Least Cost Planning</td></tr>
<tr><td>Washington State Department of Transportation (DOT) should establish a least-cost planning process that:
• specifies the goals of the transportation system and objective measures for each goal;
• fairly evaluates the costs of both demand-side and supply-side options;
• integrates planning for different modes of travel
• selects a mix of options designed to meet overall system goals at the lowest cost to society;
• involves appropriate agencies with environmental, energy, and land use expertise; and
• involves the public.</td><td>Department of Transportation (DOT)</td><td>DOT and Washington State Energy Office (WSEO) held a Least Cost Transportation Planning Symposium in November 1994 and published papers on the topic. WSEO worked with DOT on developing a Washington Administrative Code to help regional transportation planning organizations comply with Chapter 158, sessions law 1994, and is now working on guidelines for implementation. WSEO will continue to support transportation least cost planning through cooperative efforts and by providing technical assistance. The Washington State Policy Plan Steering Committee developed the Washington State Transportation Policy Plan. This committee was discontinued by the Transportation Commission. The Transportation Commission changed the policy development process, and will act as its own Transportation Policy Steering Committee. The Commission will identify future policy laws that need to be researched and will direct DOT to form ad-hoc committees to develop and present policy proposals.</td></tr>
<tr><td colspan="3">Changing the Ways People Travel</td></tr>
<tr><td>The state should make cost-effective investments to improve the rail system for greater use in the Vancouver, BC to Portland corridor.</td><td>DOT</td><td>DOT has added one round-trip between Seattle and Portland and re-established one round trip between Seattle and Vancouver, B.C. DOT is planning incremental improvements to reduce travel time and add service along the corridor during the next 20 years.</td></tr>
<tr><td>The state should complete construction of Puget Sound area High Occupancy Vehicle (HOV) lanes; arterial connections to the system; ramp access; and the parking, pedestrian, and bicycle access necessary for bus and vanpool use.</td><td>DOT</td><td>Since 1993, over 50 additional HOV lane miles have been completed for a total of 131 lane miles open to traffic. Forty-four lane miles are under construction, and 101 lane miles are planned but not yet funded.</td></tr>
</table>

WSEO should promote successful implementation of the Commute Trip Reduction (CTR) Law, encouraging employer and employee use of transportation demand management.	DOT	The CTR Program has been implemented since 1992. The Program provides services to local jurisdictions to improve employer commuter programs. The CTR Task Force submitted an interim report to the legislature in December 1995 and is scheduled to submit a progress report to the Legislature in December 1999.
DOT, cities, and counties should provide opportunities for safer and more accessible bicycle and foot transportation directly into core city areas.	DOT	DOT Bicycle and Pedestrian Program has created the bicycle and pedestrian chapter of the Washington Transportation Plan. The plan: calls for reducing the number of bicycle and pedestrian collisions with motor vehicles; calls for doubling of the amount of walking and bicycling for commuting and utilitarian trips and connections to intermodal facilities; identifies a 20-year cost projection for bicycle and pedestrian projects and programs; and creates action strategies for private organizations and local and state agencies to increase the amount of walking and bicycling and reduce collisions.
DOT should develop a specific proposal for a congestion pricing pilot program, whereby users of highways would be charged during peak period.	DOT	DOT is currently studying this issue within the Public/Private Partnerships Program.
Developing Substitutes for Transportation		
The Washington Utilities and Transportation Commission (UTC) should work with WSEO to assess the long-term ability of communications technology to substitute for transportation.	UTC DOT Washington State University (WSU)	WSEO chaired a subcommittee of the Transportation Commission Steering Committee to develop a report exploring telecommunication and transportation linkages.
The state should encourage the establishment of centralized "telework centers" in urban and suburban areas.	DOT WSU	No current activity
The state should locate significant state office facilities in non-metropolitan areas, using telecommunications to provide needed information links.	Department of General Administration (GA)	No current activity.
The state should develop a model telecommuting program and policies that could be adapted by government agencies and the private sector.	WSU GA	Completed and available through GA as part of State Government CTR Guidelines. Telecommuting training classes developed and available through the Department Of Personnel, Education and Training Program, with technical assistance provided by WSEO.

The Department of Information Services (DIS) should continue to work with public and private organizations to develop video conferencing as an alternative to travel.	Department of Information Service (DIS)	DIS Washington Interactive Television (WIT) program, in cooperation with the Office of the Superintendent of Public Instruction and Educational Service Districts, developed and operates 14 video conference centers. A recent addition includes a video conference center at the House of Representatives enabling communication between the legislature and state agencies. WIT maintains interconnectivity with four video conferencing sites at the University of Washington and is currently working with state agencies and educational institutions to implement onsite video conferencing capabilities. WIT is designing and developing a bridging (central network or dial-in) service to connect all sites (providing desktop and group access) by October 1996. WIT provides expanded service enabling worldwide communication at all video conferencing sites and offers outreach through interactive satellite broadcast training and video production services.
The UTC and telecommunications companies should consider tariffs to encourage widespread access to services providing simultaneous transmission of voice and data.	UTC	The UTC is working with US WEST Communications to consider a proposal for Integrated Services Digital Network tariff.
Using Alternative Fuels		
The Department of Ecology (DOE), GA, and WSEO should work together to ensure that current state purchasing requirements for clean-burning vehicles fit federal mandates.	Department of Ecology (DOE) GA WSU	These agencies are working closely with federal agencies that are developing alternative fuel vehicle requirements.
The state should develop the infrastructure necessary for alternative fuel experiments. WSEO should track those experiments.	WSU	WSEO has targeted interested local governments, developed partnerships, and provided seed money for five public sector compressed natural gas fueling stations that have come on line. These include two fueling stations in King County - Renton Public Works serving 150 vehicles and the Maple Valley Precinct serving 100 King County police vehicles; City of Seattle downtown fueling station which is a joint project serving vehicles from Seattle, King County, Metro and Pierce Transit; Walla Walla in eastern Washington serving 20 Valley Transit vehicles including historic trolleys, service vehicles, and vehicles from the city of College Place and city of Walla Walla; and, finally, work with Washington Natural Gas (WNG) in Olympia to upgrade their fueling station to a metered system available to the community.
The public should be advised on conversions of private vehicles to a specific alternative fuel only when results of alternative fuel experiments are clearly known.	WSU	Ongoing. A series of technical reports and fact sheets have been completed and are available to the public through WSU.

DOE should develop emissions performance standards for alternative fuel vehicles.	DOE	Ongoing. State is currently purchasing low-emission vehicles based on performance standard. Over 1,000 vehicles have been purchased using this standard.
WSEO, DOT, and the Department of Revenue (DOR) should better define "alternative fuels" and establish a clearer basis than now exists for differential tax treatment.	DOT DOR	Ongoing. WSEO has completed one report dealing with fuel taxation.
WSEO and DOE should explore the development of a co-operative West Coast (British Columbia, Washington, Oregon, and California) effort to ensure maximum learning, minimal duplication of effort, and development of a larger market for low-emission vehicles.	DOE	Ongoing. WSU is in close contact with both British Columbia and Oregon regarding alternative-fueled vehicle actions. Anticipate working together on emissions labeling effort. British Columbia is looking at adopting California emissions standards.
Improving Freight Mobility		
The UTC should work to improve the energy efficiency of the trucking industry by developing regulatory mechanisms that promote cost-effective and efficient use of fuel.	UTC	No action; state trucking regulation effectively abolished via federal legislation.
The state should revitalize the state rail abandonment program to avoid further railroad right-of-way losses and, where appropriate, purchase and preserve abandoned rights-of-way for use as transportation corridors.	DOT Attorney General (AG)	Ongoing.
DOT should examine ways to promote broader use of rail freight options.	DOT	Ongoing.
Improving Vehicle Efficiency		
The State should seek our Congressional delegation's support for increased federal Corporate Average Fuel Efficiency (CAFE) standards.	DOT DOE	No current action.
The state should propose that the western states expand purchasing consortia to include vehicle fleet purchases, with the aim of stimulating auto manufacturers to develop safe, higher-mileage, and lower-emission vehicles.	GA	No current action.
DOR, Licensing, and WSEO should develop a proposal for the 1994 legislative session to change the current license registration and excise tax system, so that it charges less for vehicles with better mileage/emissions performance and more for vehicles with poor performance.	DOR DOL	No current action.

Funding Alternatives		
The state should examine all transportation funds and re-program the funds to promote efficiency goals.	DOT UTC	DOT convened a subcommittee to explore options.
The state should realign existing taxes to reinforce policy goals, particularly to ensure that tax structures do not provide incentives to increase vehicle miles traveled, increase emissions, or decrease vehicle efficiency.	DOT Legislature	Did not occur. No current action.
The state should take advantage of available federal funds for developing new programs or technologies.	DOT	Aggressively working to take advantage of funds available through the Intermodal Surface Transportation Efficiency Act and Power Washington.
The state should raise new revenue by taxing the commodity or activity causing the problem. Revenue alternatives that merit consideration include: raising the fuel tax; extending the sales tax to sales of vehicle fuels; repealing tax exemptions for alternative fuels; and repealing the 18th Amendment to the state constitution so that existing gas tax money may be used for other transportation needs besides highways.	DOT UTC Legislature	Ongoing efforts by DOT to raise the gas tax. The tax exemption for ethanol has been repealed.
Growth Planning for Energy Efficiency		
DOT and WSEO should jointly develop a technical assistance program for local planners on the energy implications of different growth planning strategies.	WSU	WSEO documented guidance for local planners and currently reviews plans for energy implications The technical assistance program did not occur.
WSEO should work with other interested parties to develop models for planners that demonstrate energy implications of alternative urban designers; help local governments enact solar ordinances; and advocate comprehensive plans that preserve opportunities for efficient renewable energy projects.	CTED	WSU provided technical assistance to local jurisdictions upon request.

ENERGY FOR BUILDINGS, FARMS, INDUSTRY

Natural Gas Planning		
The state's gas utilities should work closely with WSEO and the UTC to develop and implement comprehensive least-cost planning.	UTC CTED	All gas utilities have accepted least cost plans on file.
Gas utilities should implement cost-effective conservation measures and programs in their service territories consistent with their least-cost plans.	UTC CTED	Gas utilities have filed demand side management tariffs. Few programs are proposed for 1996.
The state's electric and gas utilities should work closely with WSEO and the UTC to integrate their least-cost planning.	UTC CTED	Joint pilot effort by gas and electric utilities was completed in the summer 1994. In March 1996, WNG and Puget submitted a proposed merger plan with UTC.
WSEO-in cooperation with UTC, utilities, the Bonneville Power Administration (BPA), and the Northwest Power Planning Council (NWPPC), should provide a report to the governor and legislature clearly identifying the nature and extent of savings available from cost-effective fuel choice. *Page 17 of Energy Strategy*	UTC CTED	NWPPC identified fuel choice as a "resource." WSEO published a related report called *Fuel Blind Integrated Resource Planning Project.*
UTC should change its line extension policy to develop new pricing methods to permit recovery of costs from lower volume lines.	UTC CTED	WNG has filed a tariff.
The state should encourage electric utilities to consider fuel choice as a resource in their least-cost planning and to implement appropriate programs.	UTC CTED	UTC may consider as part of regulatory reform. Washington Water Power operating fuel-switching information program.
The state should encourage BPA to review its new experimental fuel choice program and refine it where it can be shown that fuel choice is cost-effective and reduces the need to use gas for electricity generation.	NWPPC UTC CTED	Demand side management resources have been severely cut. Fuel switching is not being considered at this time.
The state's gas and electric utilities should provide clear information to support cost-effective fuel choices.	UTC	Utilities cannot always do this because of competing interests between generating revenues for utilities and the best fuel choice for the customer. WSEO provides factsheets that address fuel choice.

Gas Policy and Siting		
WSEO, in coordination with the state's electric and gas utilities and customers, should develop regular statewide estimates of natural gas use.	CTED	Ongoing. Part of Washington State Energy Use Profile.
WSEO and the Department of Natural Resources (DNR) should closely monitor coal bed methane to determine its potential as an indigenous gas supply that could be developed without new interstate pipeline capacity.	DNR CTED	No current action.
WSEO should develop ways to track the efficiency of natural gas use in the state.	CTED	Ongoing. Part of Washington State Energy Use Profile.
Conservation in Use of Electricity		
The state should support the aggressive pursuit of all cost-effective conservation and efficiency opportunities in both public and private utility markets.	UTC WSU CTED	In the past, the UTC has encouraged utilities to pursue demand side management as part of their least cost plans. WSEO supports cost-effective conservation and efficiency in utility markets by: 1) providing education and training activities in state and national market transformation forums; 2) conducting integrated resource planning; 3) providing education to manufacturers, installers and users of energy efficient technology; 4) participating in non-utility markets; and 5) providing analysis on federal or state energy efficient codes.
The state should support the effort to develop and implement regulatory approaches that align private utilities' financial interests with the successful implementation of their least-cost plans. *Page 21 of Energy Strategy*	UTC CTED	Current restructuring of the electricity industry is encouraging short term decision making regarding resource acquisition. Washington Water Power has implemented a tariff rider to fund conservation and low-income programs in their service territory. The Department of Community, Trade, and Economic Development (CTED) and the UTC continue to pursue strategies that encourage long-term least-cost resource decisions.
BPA should develop better incentives and market conditions to ensure the successes of conservation investments in service areas of public utilities -- both larger utilities in major urban growth areas and smaller utilities in slow-load growth areas. *Page 22 of Energy Strategy*	CTED	WSEO is a member of the Sounding Board for BPA’s Business Plan and participates in regional negotiations and forums.
The state should regularly revise state commercial and residential building codes to achieve the region's conservation targets.	CTED WSU	Next revision to residential and commercial energy codes will occur in 1998. Economic analysis of improved residential measures is conducted by WSEO under contract with BPA. Current evaluation of energy savings under Nonresidential Energy Code is being conducted by Utility Code Group and WSEO. WSEO performs analysis on potential code upgrades.

BPA and the investor-owned gas and electric utilities should include the cost of supporting code implementation (education, training, and enforcement) as a high priority for funding.	UTC CTED WSU	The Utility Code Group assumes the functions of non-residential energy code implementation, including funding and oversight of training. It also operates the special enforcement mechanism which includes Special Plans Examiner/Special Inspector program, used in the utility reimbursement program for non-residential energy code. Program activities continue through March 1, 1997.
The NWPPC, WSEO, UTC, BPA, and utilities should cooperate in the development of a set of standard and uniform principles for evaluating cost-effectiveness and verifying the performance of BPA and utility financed conservation measures. *Page 23 of Energy Strategy*	UTC CTED WSU	The NWPPC is working with BPA and other energy partners in the region to create a Regional Technical Forum. Its responsibilities include developing standard evaluation methodologies, and verifying or tracking energy conservation in the region.
The state and region should take full advantage of all federal funds available for supporting conservation technology transfer and demonstration.	CTED DOE WSU	Federal grant received in 1995 via NICE3 (National Industrial and Competitiveness through Energy, Environment and Economics) for food processing project. WSEO also received grants for US Department of Energy's Codes Program to provide duct training, non-residential code support, code technology transfer, and code training for equipment suppliers (1995-1997). WSEO/US Department of Energy managed a program for federal, state, school, and local government facilities - Public Buildings Challenge (1995-1997). The Energy Ideas Clearinghouse was selected by US Department of Energy to operate the information portion of the national Motor Challenge program.
The State Board for Community and Technical Colleges and the Higher Education Coordinating Board should develop curricula and provide training and certification programs for energy-related specializations.	Higher Education Coordinating Board WSU State Board for Community and Technical Colleges	Edmonds Community College has an energy management curriculum. Edmonds is supported by WSEO using the Bulletin Board Service for long-distance learning opportunities. WSEO also supports the program with education and training activities.
The state should vigorously pursue programs that ensure that the public buildings are constructed and operated to use energy efficiently.	GA WSU	Revised Energy Life Cycle Cost Analysis Guidelines for public agencies were published in 1995. Trainings on the new guidelines were held throughout the state via the Washington Interactive Television Network. Technical Assistance Study Guidelines were developed for schools and hospitals participating in the Institutional Conservation Program. An average of 30 Building Operator Training sessions were held each year with 400-500 operators trained annually. The Building Operator Certification program is being developed to provide ongoing training.
Improving System Efficiencies		
The state should support cooperative multi-state analyses of the opportunity for greater seasonal electricity exchanges along the Pacific Coast.	UTC CTED	WSEO and UTC participate in regional forums for promoting exchanges and other opportunities.

BPA should improve policies to boost access to interstate transmission lines and should examine shared ownership options.	UTC CTED	Federal Energy Regulatory Commission "open access" changes to transmission are resulting in organization of Regional Transmission Groups. WSEO is an active participant in regional activities and has commented on transmission access and pricing policy.
The U.S. Bureau of Reclamation and the U.S. Army Corps of Engineers should include turbine efficiency improvements in their budgets and promptly implement measures, in view of rising regional power demand and the low cost and impact of these resources. *Page 25 of Energy Strategy*	NWPPC	No current action.
Renewable Energy Sources		
Utilities and BPA should experiment with targeted solicitations for renewable resources that are nearly competitive with gas.	WSU	BPA is negotiating a contract with one Washington wind-powered project sponsored by CARES (Conservation and Renewable Energy System). WSEO has testified in support of the project. BPA is negotiating other wind and geothermal projects in the region. WSEO will continue to identify and promote renewable project opportunities.
NWPPC, BPA, UTC, and utilities should move quickly to improve their ability to evaluate the full range of benefits from renewable energy technologies.	WSU UTC CTED	WSEO provided a briefing paper to the Power Council on the availability of biomass resources and the conservation costs for electric production. Promising areas include chemical recovery boilers at pulp mills and eastside forest resources to restore forest health. WSEO will continue to serve as a technical resource to the Council.
The state should consider renewable energy projects, such as wind turbines, suitable on parcels of land designated as range land or open space. *Page 27 of Energy Strategy*	AG DNR CTED Fish & Wildlife	WSEO worked with the DNR to quantify the value of state owned land that could be used for wind energy development. Counties are currently taxing wind farm land at rates that are acceptable to the wind industry and do not discourage wind energy development. No further action seems needed at this time.
Non-utility Fuels		
The state should support wide dissemination to homeowners and building operators of information describing practical opportunities to improve the efficiency of buildings using petroleum, coal, and wood.	WSU	WSEO has ongoing public information programs such as Energy Hotline, newspaper columns, community energy projects, and the Energy Ideas Clearinghouse.

The state should support actions to improve efficiency in the use of non-utility fuels in public buildings.	GA WSU	Through the Energy Conservation Reports process, WSEO staff work closely with schools and their consultants to ensure renewable resources are seriously considered when doing energy life cycle cost analyses of new construction projects and remodels. WSEO administered a Small Scale Renewable Matching Grants Program for public buildings. Twenty-six projects were awarded a total of $85,000 for their non-utility fuels installations. Through Washington Interactive Television Network, four video conferences were held in 1994 on ground water heat pumps.
Low-income Assistance		
The state should support funding that addresses the energy needs of low-income citizens.	CTED UTC	Working with the Housing Energy Efficiency and Preservation Advisory Council. The Housing Trust Fund received Capitol Fund appropriation for 95-97 biennium to be used for weatherization. Participated in utility collaboratives and technical advisory groups during demand side management planning. Governor supported continued federal funding of weatherization programs. Supported funding of The Energy Project, a joint leveraging/education effort between CTED and the Association of Community Action Agencies. CTED coordinated with the Interagency Energy Strategy Task Force. Advocated for continued BPA funding of conservation programs. Future activities: Justify continued Housing Trust Fund funding. Advocate for an increase in weatherization funding from the capitol budget. Ask the Governor and legislature to support utility tax credits to stimulate investment in low income energy conservation. Support continued funding and activities of The Energy Project.
CTED should work with WSEO, the AG's Office, and electric and gas utilities to ensure that low-income weatherization programs address energy savings for the largest number of low-income citizens possible.	CTED AG UTC	Working with the Housing Energy Efficiency and Preservation Advisory Council. WSEO and UTC exploring low-income programs. Participated in utility collaboratives, technical advisory groups, and CTED advisory groups. Coordinated with the UTC and the Interagency Energy Strategy Task Force. Future activities: Work with utilities, UTC and BPA as utility restructuring gains momentum to ensure low-income households are not adversely impacted by changes. Work with advisory groups and stakeholders on policy changes needed in changing funding environment.

Energy Education

The state should support education activities that increase the energy literacy of Washington citizens.	CTED DOT Superintendent of Public Instruction (SPI) Governor's Council on Environmental Education WSU	Ongoing. WSEO produces newspaper columns, Energy Hotline, factsheets, and community education programs. Published manual to aid development of consumer energy education programs. Will continue distribution of manual and conduct energy training for trainers and clients.
The legislature should provide funds to SPI to produce the second phase of the "Energy, Food, and You" curriculum.	SPI	No current action.
WSEO should survey utilities and building operators and advise the Higher Education Coordinating Board about what programs should be developed to train technicians and system operators for conservation and efficiency work in the residential, commercial, and industrial sectors.	CTED Higher Education Coordinating Board WSU	Creating a certification program for building operators. Starting consortia to address residential training assistance. Ongoing Building Operator Training.
The state's universities should examine their engineering and architecture programs to ensure that tomorrow's professional graduates are prepared to design facilities of all kinds with energy use in mind.	Higher Education Coordinating Board WSU	WSEO Clearinghouse offers services to university architecture and engineering programs. WSEO administers a program offering energy education to commercial building design professionals and students.
Higher education programs should include energy education units in pre-service and in-service teacher training.	Higher Education Coordinating Board SPI	Assessing current level of energy education.

PROTECTING OUR ENVIRONMENT

Carbon Dioxide and Global Warming

WSEO should develop a more comprehensive inventory and projection of carbon dioxide and other greenhouse gas emissions and identify the most cost-effective measures for meeting emissions targets.	DOE WSU CTED	Phase 1 - Inventory and projection of greenhouse gas emissions in Washington completed. Phase 2 - Greenhouse Gas Mitigation Option for Washington State completed.
The state should urge our Congressional delegation to support a national carbon dioxide and greenhouse gas emission target.	DOE CTED	No current action.

Environmental Regulation and Energy Decision Making

BPA and the state's electric utilities should incorporate quantifiable costs, including environmental costs, into least-cost planning and modeling.	UTC CTED	NWPPC, BPA, and several regional utilities consider environmental costs in resource acquisition decisions.
The state encourages more comprehensive assessment of environmental costs in all energy sectors, not just electricity planning.	UTC CTED	Under assessment.

Siting Energy Facilities

The Governor should instruct his cabinet to focus its attention on implementing the provisions of the state energy strategy using existing rules, but avoiding costly duplication and ensuring rapid decision making.	Governor's Office CTED	Energy Strategy Executive Order 94-01. ESB-6493 makes the Energy Strategy the primary guide for implementation of the state's energy policy.
WSEO should take the lead in ensuring that supply and conservation projects consistent with the strategy receive fair and rapid treatment by the many state, federal, and local agencies that must review them.	CTED	WSEO comments on renewable supply proposals and funds Conservation and Renewables Energy System position. Rather than develop model local siting ordinances, WSEO funded a study that developed a set of recommendations to local governments for model siting processes.
BPA and investor-owned utilities should consider funding generic impact investigations, particularly for renewable technologies, so as to narrow the number of issues requiring study during actual siting.	UTC CTED	WSEO developed 30-layer Geographic Information System environmental prescreening system. WSEO has applied to US Department of Energy for Geographic Information System mapping of raptor patterns to address wind facility impact. WSEO urged NWPPC to encourage utilities to fund generic studies.

The legislature should form a siting review panel, similar to the State Environmental Policy Act Review Panel of 1982-83, to develop revised state siting procedures and legislation to implement them.	CTED	Completed. Committee reached consensus on few issues. No legislation was passed.
ROLE OF STATE ENERGY OFFICE		
WSEO should improve and realign current programs to fit the energy strategy.	Effective July 1, 1996, transfer of the following WSEO programs and functions will take place:	
WSEO should play a leadership role in state government to support the development of new energy resources that are consistent with the strategy.	Work related to energy resource policy and planning; administration of energy program grants; and the Energy Facility Site Evaluation Council will transfer to CTED;	
WSEO should take a supportive role with other state agencies, local governments, schools, and others to integrate energy issues in their plans and decisions.	Energy efficiency work related to public sector facilities will transfer to GA; Support programs and resources for carrying out the CTR law, including administrative support for the CTR Task Force, will transfer to DOT; and	
WSEO should conduct a number of studies, track certain technological changes, and prepare a number of reports that will provide for timely and informed future decisions concerning energy.	Energy programs focusing on energy resources, applied research, industrial, software, telecommunications, education/information, technology transfer, public sector training and technical assistance, energy codes and the Energy Ideas Clearinghouse will transfer to the WSU Extension Service.	

List of Acronyms and Abbreviations

	Acronym	Definition
A	ADSL	Asymmetrical Digital Subscriber Line
	AG	Washington State Attorney General's Office
	aMW	Average Megawatt
	AWC	Association of Washington Cities
B	Bonneville	Bonneville Power Administration
	BPA	Bonneville Power Administration
	BTU	British Thermal Unit
C	CAFE	Corporate Average Fuel Efficiency
	CFC	Cooperative Finance Corporation
	COOPS	Rural Electric Cooperatives
	Council	Energy Facility Site Evaluation Council (EFSEC)
	CT	Combustion Turbine
	CTED	Washington Department of Community, Trade and Economic Development
	CTR	Commute Trip Reduction
D	DIS	Washington Department of Information Service
	DNR	Washington Department of Natural Resources
	DOE	Washington Department of Ecology
	DOR	Washington Department of Revenue
	DOT	Washington State Department of Transportation
	DSM	Demand Side Management
E	ECAR	East Central Area Reliability Council
	EFSEC	Energy Facility Site Evaluation Council
	EPRI	Electric Power Research Institute
	ERCOT	Electric Reliability Council of Texas
F	FCRPS	Federal Columbia River Supply System
	FERC	Federal Energy Regulatory Commission
	FRCC	Florida Reliability Coordinating Council
G	GA	Washington Department of General Administration
	GPS	Global Positioning System
	GSP	Gross State Product
H	HOV	High Occupancy Vehicle
	HVAC	Heating, Ventilation and Air Conditioning

	Acronym	Definition
I	IDI	Interdisciplinary Design Institute
	IndeGO	Independent Grid Operator
	IOU	Investor Owned Utility
M	MAAC	Mid-Atlantic Area Council
	MAIN	Mid-America Interconnected Network
	MAPP	Mid-Continent Area Power Pool
	MPG	Miles per gallon
	MW	Megawatt
N	NARUC	National Association of Regulatory Utility Commissioners
	NEEA	Northwest Energy Efficiency Alliance
	NEEC	Northwest Energy Efficiency Council
	NERC	North American Electric Reliability Council
	NEV's	Neighborhood Electric Vehicles
	NPCC	Northeast Power Coordinating Council
	NRPF	Northwest Regional Power Facility
	NWPP	Northwest Power Pool
	NWPPC	Northwest Power Planning Council
O	OFM	Washington State Office of Financial Management
	OPEC	Organization of Petroleum Exporting Countries
P	POU	Publicly Owned Utility
	PPC	Public Power Council
	PSE	Puget Sound Energy
	PUD	Public Utility District
R	RCW	Revised Code of Washington
	RTF	Regional Technical Forum
S	SCADA	Substation Control & Data Acquisition System
	SERC	Southeastern Electric Reliability Council
	SPP	Southwest Power Pool
	SPI	Superintendent of Public Instruction
	SQI	Service Quality Index
	Supply System	Washington Public Power Supply System (WPPSS)
U	UTC	Washington Utilities and Transportation Commission
V	VMT	Vehicle-miles traveled

	Acronym	Definition
W	WIT	Washington Interactive Television
	WNP	Washington Nuclear Project
	WNP-1	The Supply System's terminated nuclear plant at Hanford
	WNP-2	The Supply System's operating nuclear plant at Hanford
	WNP-3	The Supply System's terminated nuclear plant at Satsop
	WNP-4	The Supply System's terminated nuclear plant at Hanford (on the same site as WNP-1)
	WNP-5	The Supply System's terminated nuclear plant at Satsop (on the same site as WNP-3)
	WPPSS	Washington Public Power Supply System
	WSCC	Western Systems Coordinating Council
	WSEO	Washington State Energy Office (closed June 30, 1996)
	WSU	Washington State University
	WWP	Washington Water Power
Y	Y2K	Year 2000

Appendix F

Glossary[1]

Access Charge: A fee levied for access to a utility's transmission or distribution system. It is a charge for the right to send electricity over another's wires and is not typically tied to the actual amount of power shipped.

Aggregator: An entity that brings together customers into a buying group for the purchase of a commodity or service. The vertically integrated investor owned utility, public utility districts, municipal utilities, and rural electric cooperatives perform this function in today's power markets. Other entities such as buyer cooperatives or brokers could perform this function in a restructured power market. This is not to be confused with a marketer, which is an entity that represents different suppliers.

Alaska North Slope (ANS): A crude oil and natural gas producing region, located on the northern coastal plain in Alaska and offshore in the Beaufort Sea.

Ancillary Services: For electric power, includes the provision of reactive power, frequency control, and load following.

Arctic National Wildlife Refuge (ANWR): A National Wildlife Refuge located adjacent to the ANS producing region, thought to contain large crude oil reserves.

Association of Northwest Gas Utilities (ANGU): An organization that consists of the natural gas local distribution companies and pipelines operating in the Northwest. Contact Rich Gallagher; 503-228-4754.

Association of Public Agency Customers (APAC): Formed in 1981, APAC is a non-profit association representing its members in Bonneville Power Administration rate proceedings and rate-related issues. Its membership consists of industries that purchase power from public utility districts, municipals, or cooperatives in the Northwest. APAC is closely affiliated with Industrial Customers of Northwest Utilities. Contact Ken Canon; 503-239-9169.

Average Cost: The revenue requirement of a utility divided by the utility's sales. Average cost typically includes the costs of existing power plants, transmission, and distribution lines, and other facilities used by a utility to serve its customers. It also includes operating and maintenance, tax and fuel expenses.

Average Megawatt (aMW): Equivalent to the energy produced by the continuous operation of one megawatt of capacity over a period of one year (8,760 megawatt hours).

Barrel: A volumetric unit of measure for crude oil and petroleum products equivalent to 42 U.S. gallons.

Capacity: The maximum power that a machine or system can produce or carry under specified conditions. The capacity of generating equipment is generally expressed in kilowatts or megawatts. In terms of transmission lines, capacity refers to the maximum load a line is capable of carrying under specified conditions.

Captive Customers: Any customer that cannot readily purchase power from suppliers other than the local utility, even if they have the legal right to do so. Captive electricity customers are generally considered to be the residential and small commercial customers. The large commercial and industrial customers, in contrast, are thought to be more mobile. This mobility, or lack thereof, relates to the restructuring debate since the larger customers can threaten to leave the area (causing greater rates as fewer customers share the bill for fixed or sunk costs) or are able to win greater concessions in a negotiated process through their buying power.

Committee for Regional Electric Power Cooperation (CREPC): Created by the Western Interstate Energy Board, in conjunction with the Western Conference of Public Service Commissioners, consists of the public utility commissions, energy agencies, and facility siting agencies in the western states and Canadian provinces in the western electricity grid. CREPC works to improve the efficiency of the western electric power system. Contact Roger Hamilton; 503-378-6611.

Comparability Tariffs: In a restructured wholesale electrical market, according to FERC Order 888, there should be non-discriminatory, open access charges or tariffs for use of the transmission network by all generators of wholesale electricity on a comparable basis. These tariffs provide that the same prices, terms and conditions would apply to both the utility for its own transactions and to other generators.

Crude Oil (including lease condensate): A mixture of hydrocarbons that exists in liquid phase in underground reservoirs and remains liquid at atmospheric pressure after passing through surface separating (refining) facilities. Included are lease condensate and liquid hydrocarbons produced from tar sands, gilsonite, and oil shale.

Demand-Side Management (DSM): Refers to the use of cost-effective conservation, efficiency acquisition, and load management in order to reduce the demand for and cost of energy services. Energy efficiency, generally speaking, refers to investments that result in reductions in annual energy use while load management means shifting the time of that use.

Direct Access: The ability of a retail customer to purchase commodity electricity directly from the wholesale market rather than through a local distribution utility.

Direct Service Industries (DSIs): A group of industrial customers, mostly aluminum industries, entitled by federal statute to receive power directly from Bonneville. No new DSIs can be created under current statutes and DSIs are prohibited from reselling the power they purchase from Bonneville.

Disaggregation: The functional separation of the vertically integrated utility into smaller, individually owned business units (i.e., generation, dispatch/control, transmission, distribution). See Divestiture.

Distillate Fuel Oil: Light fuel oils distilled during the refining process and used primarily for space heating, on-and-off highway diesel engine fuel (including railroad engine fuel and fuel for agricultural machinery), and electric power generation. Included are products known as No. 1, No. 2, and No. 4 fuel oils, and No. 1, No. 2, and No. 4 diesel fuels. No. 2 fuel oil is used in atomizing-type burners for domestic heating or for moderate commercial-industrial burner units. Diesel fuels are used in compression-ignition engines.

Distribution: The transfer of electricity from the transmission network to the consumer. Distribution systems generally include the equipment to transfer power from the substation to the customer's meter.

Distribution Utility (Disco): The regulated electric utility entity in a competitive world that would construct and maintain the distribution wires connecting the transmission grid to the final customer. This entity would make distribution service available to any qualified energy service company on comparable bases.

Divestiture: The stripping off of one function from the others by selling or in some way changing the ownership of the assets related to that function. In the utility industry most commonly associated with spinning off generation assets so that they are no longer owned by the shareholders that own the transmission and distribution assets. Divestiture, or legal separation, is distinguished from functional separation.

Embedded Cost: The average cost of a system, typically including the depreciated or book value of historic investment plus running costs.

Environmental Externalities: An ‘eternality’ exists when one party’s activities affect the life or activities of the other parties in ways that are not factored into the production and pricing decisions of the first party. Such impacts may be positive or negative. With respect to utility activities, if costs are imposed on society that are not counted in electricity resource selection and operation decisions, two effects can be expected: 1) certain resources may be selected to meet incremental capacity requirements over alternatives that have higher 'direct' costs, but whose external costs are so low that these alternatives, if selected, would impose lower total costs on society; and 2) the product (electricity) will be underpriced, so that, from an economic perspective, too much will be consumed. In sum, these two effects will result in inefficient utilization of society's resources, as well as the imposition of costs, without compensation, on parties who have little or no say in the polluting firm's decisions.

Federal Energy Regulatory Agency (FERC): The Federal Agency that oversees the nation's utility industry. It regulates the price, terms and conditions of power sold in interstate commerce and regulates the price, terms and conditions of all transmission services.

Firm Power: Firm power is power that is available under a recurrence of the worst water conditions since 1929 (when system-wide river data became available).

Fish Cap: The Bonneville fish and wildlife budget agreement first agreed to by the Clinton Administration in the Fall of 1995 and then memorialized and implemented in the inter-agency "Memorandum of Agreement Concerning the Bonneville Power Administration's Financial Commitment for Columbia River Basin Fish and Wildlife Costs. In this Agreement, which runs through Fiscal Year 2001, Bonneville has agreed to (a) absorb the financial consequences of the current bundle of planned system operations -- implementing the 1995 Biological Opinions for Snake River salmon (National Marine Fisheries Service) and Kootenai sturgeon (U.S. Fish and Wildlife Service), as well as a few other elements, such as the Lake Pend Oreille reservoir levels in the Council's program, and (b) provide an average of $252 million per year over the term of the Agreement for expenditures in the direct program, capital investments, and reimbursable operations and maintenance categories. The Agreement also provides for contingency fund credits of an estimated $325 million that Bonneville may use to offset against its Treasury repayment (under Section 4h(10)(c) of the Northwest Power Act) to cover additional fish and wildlife costs to Bonneville resulting from adverse water conditions, from court orders, or from certain emergencies (up to $15 million per year). The Agreement states that its purposes are to provide greater financial certainty for Bonneville through a stable, multi-year budget; to identify a budget that, barring unforeseen events, will meet Bonneville's fish and wildlife funding obligations; and to provide for mechanisms to help assure that the funds are spent wisely and efficiently. If unforeseen events (or unexpected financial consequences of foreseen events) impose unexpected additional fish and wildlife funding obligations on Bonneville, the federal agencies will consult with the Council and the region's Indian Tribes to decide how to manage the additional costs.

Flow Augmentation: As used in the Pacific Northwest in reference to the hydroelectric system, "flow augmentation" means increasing water flows through the system, above the levels that would maximize the value of the system's electricity production, in order to assist anadromous fish migration to the ocean.

Fossil Fuels: Sources of energy from the earth, primarily crude oil, natural gas, and coal.

Fuel Efficiency: The efficiency with which a new vehicle uses fuel, measured in miles per gallon.

Fuel Efficiency, EPA-Rated: New vehicle fuel efficiency, measured in miles per gallon, as measured in laboratory conditions by the Environmental Protection Agency. The Energy Information Administration estimates that EPA laboratory tests overestimate actual on-road performance by approximately 16 percent.

Fuel Efficiency, Stock Average: Fuel efficiency of the average existing vehicle, measured in miles per gallon. Stock average fuel efficiency is calculated as the quotient of vehicle-miles traveled and fuel consumption.

Gasoline: See Motor Gasoline, Finished

Generation Company (Genco): A regulated or non-regulated entity (depending upon the industry structure) that, in a restructured environment, would operate and maintain generating plants. The Genco may own the generation plants or interact with the short-term market on behalf of plant owners. Genco is sometimes used to describe a specialized "marketer" for the generating plants formerly owned by a vertically integrated utility.

Green Marketing/Green Pricing: The offer for sale at either wholesale or retail, power products from renewable resources, i.e., "green power." Providing consumers who believe that the benefits of renewable resources are not fully reflected in market-driven resource development with the opportunity to purchase "green power."

Grid: A system of interconnected power lines and generators that is managed so that the generators are dispatched as needed to meet the requirements of the customers connected to the grid at various points. See Independent Grid Operator.

Heating Oil: A distillate fuel oil for use in atomizing-type burners for domestic heating or for moderate-capacity commercial and industrial burner units. (See also Distillate fuel oil.)

Incremental Cost: The cost of building and running a new resource. See also marginal cost. Typically, incremental cost refers to the cost of another resource, while marginal cost refers to the cost of adding a single small unit of power, e.g., a kilowatt-hour.

Independent Grid Operator (IGO): A neutral operator responsible for maintaining instantaneous balance of the grid system. The IGO performs its function by controlling the operation of the transmission system and enough generation capacity to ensure short-term transmission reliability.

Industrial Customers of Northwest Utilities (ICNU): ICNU is a non-profit organization formed in 1981. ICNU represents 25 industrial companies with facilities throughout the Northwest. ICNU members purchase power from the region's public agencies and investor-owned utilities, rather than directly from Bonneville. ICNU focuses on policy matters and works actively with the Northwest Power Planning Council, Bonneville, and the region's utilities. Areas of interest include conservation, cogeneration, forecasting, and reliability. Contact Ken Canon; 503-239-9169.

Integrated Resource Planning (IRP): Also known as Integrated Resource Management, or least-cost planning (LCP), a planning process for new energy resources that evaluates the full range of alternatives, in order to provide adequate and reliable service to its customers at the lowest system cost. The alternatives can include new generation capacity, power purchases, energy conservation and efficiency, cogeneration and renewable energy resources. In a restructured electric industry there may be no mechanism to continue this process.

Investor-Owned Utility (IOU): A for-profit company owned by stockholders, that provides utility services.

Jet Fuel: Includes both naptha-type and kerosene-type jet fuel. Although most jet fuel is used in aircraft, some is used for other purposes, such as fuel for turbines to produce electricity.

Kerosene: A petroleum middle distillate, with burning properties suitable for use as an illuminant when burned in wick lamps. Kerosene is used primarily in space heaters, cooking stoves, and water heaters.

Lease Condensate: A natural gas liquid recovered from gas-well gas in lease separators or natural gas field facilities. Lease condensate consists primarily of pentanes and heavier hydrocarbons. Generally, it is blended with crude oil for refining.

Least Cost Planning: Same as Integrated Resource Planning (IRP)

Light Oil: No. 1 and No. 2 fuel oils, kerosene, and jet fuel used by the electric utility sector. The term light oil is applied only to fuel used in the electric utility sector.

Liquefied Petroleum Gases (LPG): Ethane, propane, normal butane, ethane-propane mixtures, propane-butane mixtures, and isobutane produced at natural gas processing plants. LPG also includes liquefied refinery gases (ethylene, propylene, butylene, and isobutylene) produced from crude oil at refineries.

Load: The amount of power that needs to be generated to supply demand.

Lubricants: Substances used to reduce friction between bearing surfaces. Petroleum lubricants may be produced from either distillates or residuals. Other substances may be added to impart or improve certain required properties.

Marginal Cost: In the utility context, the cost to the utility of providing the next (marginal) kilowatt-hour of electricity, irrespective of fixed costs.

Market-based Price: A price set by the mutual decisions of many buyers and sellers in a competitive market. In a competitive market this price is expected to approximate the marginal cost. (See marginal cost)

Market Transformation: Type of DSM activity which focuses on improving energy efficiency by encouraging long-term changes in the market for energy efficient technologies or practices.

Marketer: An agent for generation projects who, in a restructured electrical market, would sell power on behalf of the generator. The marketer may also arrange transmission, firmness, or other ancillary services as needed. Although a marketer may perform many of the same functions as a broker, the difference is that a marketer would represent the generator, while a broker would act as a middleman.

Megawatt (MW): The electrical unit of power that equals one million watts or one thousand kilowatts.

Mill: A tenth of a cent. The cost of electricity is often given in mills per kilowatt-hour.

Miscellaneous Petroleum Products: Includes all finished petroleum products not classified elsewhere, e.g., petrolatum, absorption oils, ram-jet fuel, rocket fuels, specialty oils, and medicinal oils.

Motor Gasoline, Finished: A complex mixture of relatively volatile hydrocarbons, with or without small quantities of additives, that have been blended to form a suitable fuel for spark-ignition engines. Included are gasohol and finished leaded and unleaded gasoline.

Natural Monopoly: A situation where one firm can produce a given level of output at a lower total cost than can any combination of multiple firms. Natural monopolies occur in industries that exhibit decreasing average long-run costs with increasing size (economies of scale). Historically, electrical generation has been assumed to be a natural monopoly. This assumption is being questioned in the electrical industry restructuring debate.

Net Billed Plants: Refers to the 30 percent share of the Trojan Nuclear Plant, all of Washington Public Power Supply System's nuclear project 1 (WNP-1) and WNP-2, and 70 percent of WNP-3.

Net Billing: A financial arrangement that allowed Bonneville to underwrite the costs of electric generating projects. Utilities that owned shares in thermal projects, and paid a share of their costs, assigned to Bonneville all or part of the generating capability of the resources. Bonneville, in turn, credited and continues to credit the wholesale power bills of these utilities to cover the costs of the thermal power with lower cost hydropower.

North American Electric Reliability Council (NERC): NERC is a nonprofit corporation owned by ten regional councils. The members of the regional councils are electric utilities, independent power producers, and electricity marketers. The electric utility members are from all ownership segments of the industry investor-owned, federal, state, municipal, rural electric cooperative, and provincial. These members account for virtually all the electricity supplied in the United States, Canada, and a part of Mexico. The reliability council for Washington utilities is the Western Systems Coordinating Council (see below). The primary responsibility of NERC is to study transmission issues and determine when national standards are appropriate. Contact Donald Benjamin; 609-452-8060.

Northwest Industrial Gas Users: An organization that represents industrial gas users in a number of forums, including rate proceedings and before the legislature. Contact Mary Ann Hutton: 503-538-0600.

Obligation to Serve: In exchange for the regulated monopoly status of a utility for a designated service territory with the opportunity to earn an adequate rate of return, comes the obligation to provide electrical service to all customers who seek that service at fair and reasonable prices. This has been known as the "regulatory compact" and also includes the requirement to provide a substantial operating reserve capacity in the electrical system.

Office of Public Council (OPC): A branch of the Washington Attorney General's office designated to represent the interests of consumers in proceedings before the Utilities and Transportation Commission. Contact Rob Manifold; 206-464-6595.

Open Access: See Direct Access.

Pacific Northwest Utilities Conference Committee (PNUCC): PNUCC membership is open to all Pacific Northwest public and private electric utilities and Direst Service Industries. It is a forum for sharing information and views on national, regional, and local power industry issues and is governed by a 10-member board of directors elected by the membership. PNUCC assists members by keeping them aware of changes that may have a significant impact on how the electric industry does business. Acting as forum for its membership, PNUCC is a catalyst for examining energy and environmental issues, encouraging dialogue among its members, and acting as the hub for technical analysis and data on vital Northwest power industry issues. Contact Richard Adams; 503-294-1268.

Petroleum: A generic term applied to oil and oil products in all forms, such as crude oil, lease condensate, unfinished oils, motor gasoline, distillate fuel oil (diesel), heavy oil, aviation gasoline, kerosene, and LPG.

Petroleum Products: Products obtained from the processing of crude oil, natural gas, and other hydrocarbon compounds.

Postage Stamp Rate: A transmission price that does not vary with the distance power is being transmitted. Postage stamp rates are the predominant form of pricing in the United States currently.

Priority Firm (PF) Rate: Under the Northwest Power Act of 1980 (get correct citation from BR), publicly owned utility customers of Bonneville are entitled to power at cost. The resulting rate for which publicly owned customers are eligible is termed "priority firm." This denotes the fact that the power purchased has priority over some other power (for example, out of region sales) and is "firm," i.e., cannot be interrupted. Bonneville has many other rates available to its customers as well.

Propane: A normally gaseous hydrocarbon extracted from natural gas or refinery gas streams. It is primarily used for residential and commercial heating and cooling, and also as a fuel for transportation. Industrial uses of propane include use as a petrochemical feedstock.

Provider of Last Resort: A legal obligation (traditionally required of utilities) to provide services to a customer where competitors have decided they do not want that customer's business.

Public Power Council (PPC): Formed in 1966, the Public Power Council represents and advocates the common legal and technical interests of the Northwest's consumer-owned utilities. PPC interacts with Bonneville, the Northwest Power Planning Council, and other regional and national groups on subjects including Bonneville rate proceedings and power marketing policies, public preference issues, power supply planning, conservation, legislative concerns, and related issues. Contact C. Clark Leone; 503-232-2427.

Public Utilities Regulatory Policy Act of 1978 (PURPA): In response to the energy crisis of the 1970s, Congress passed the National Energy Act (NEA) in 1978. Part of the NEA was the Public Utility Regulatory Policy Act. This Act sought to encourage conservation and efficient use of existing energy resources. It also fostered the development of small power production and cogeneration (collectively known as Qualified Facilities) by requiring utility companies to purchase output from these sources at avoided cost rates, a rate not to exceed the utility's incremental cost.

Publicly Owned Utility (POU) or Customer-owned Utility (COU): As distinguished from investor-owned utilities, publicly owned utilities are owned and governed by their users. In Washington, publicly owned utilities can be Public Utilities Districts (PUDs), divisions of a municipality, or cooperatives, which are private organizations owned by their members. A special type of cooperative is the rural electric cooperative, which receives financial backing from the federal Rural Utility Service. Each type of publicly owned utility has special statutes relating to governance and authority.

Regional Transmission Group (RTG): A large number of utilities, independent power producers, and state agencies join to provide more equitable and easier access to power lines in an area covering many states. The first such RTGs were approved in 1995 the Western and Northwest Regional Transmission Associations. The FERC has said it would defer to decisions made by such groups.

Regulatory Compact: See Obligation to Serve.

Reliability: Electric system reliability has two components -- adequacy and security. Adequacy is the ability of the electric system to supply the aggregate electrical demand and energy requirements of the customers at all times, taking into account scheduled and unscheduled outages of system facilities. Security is the ability of the electric system to withstand sudden disturbances, such as electric short circuits or unanticipated loss of system facilities.

Renewable Resources (Renewables): In the context of electricity restructuring discussions, the use of renewable resources commonly refers to those renewable energy sources that are still emerging technologies such as wind, solar (photovoltaic) biomass, and geothermal, that do not yet have a fully-developed market. This generally-accepted definition does not normally refer to electricity generated by hydropower.

Residual Fuel Oil: The heavier oils that remain after the distillate fuel oils and lighter hydrocarbons are distilled away in refinery operations.

Restructuring: The reconfiguration of the vertically integrated electric utility. Restructuring usually refers to separation of the various utility functions into separate entities.

Retail Competition: A system under which more than one electricity provider can sell to retail customers, and retail customers are allowed to buy from more than one provider. See also Direct Access.

Retail Rates: Rates and charges for the sale of electric energy directly to consumers.

Retail Wheeling : Unbundled transmission service from a third party supplier to an end user. Wholesale wheeling involves a producer of power selling that power to someone who will sell it again to an end user. Retail wheeling skips the middleman--a producer of power sells electricity directly to a consumer. Wholesale transactions are under federal jurisdiction. Retail transactions are under state jurisdiction. See direct access.

RTG: See Regional Transmission Group

Self-generation: A generation facility dedicated to serving a particular retail customer, usually located on the customer's premises. The facility may either be owned directly by the retail customer or owned by a third party with a contractual arrangement to provide electricity to meet some or all of the customer's load.

Stranded Benefits: Public interest programs and goals that could be compromised or abandoned by a restructured electric industry. These potential "stranded benefits" might include: environmental protection, fuel diversity, energy efficiency, low-income ratepayer assistance, and other types of socially beneficial programs. Sometimes used to describe the possible loss of low prices to consumers of utilities whose current prices are below the expected market price of electricity.

Stranded Costs (also called Stranded Investments): Stranded costs can be thought of as the amount of book value above market value of a utility's assets. Stranded costs may be incurred when a customer stops buying power from a utility and, instead, simply uses the utility's transmission service to obtain power from another source. FERC Order 888 established that utilities are entitled to full recovery of legitimate and verifiable wholesale stranded costs at both the state and federal level. A standardized method for determining the stranded costs has not yet been established.

Tariff: A document, approved by the responsible regulatory agency, listing the terms and conditions, including a schedule of prices, under which utility services will be provided.

Transmission: The act of process of long-distance transport of electric energy, generally accomplished by elevating the electric current to high voltages.

Unbundling: Disaggregating electric utility service into its basic components and offering each component separately for sale with separate rates for each component. For example, generation, transmission, and distribution could be unbundled and offered as discrete services. See unbundled rates.

Unbundled Rates: Unbundled rates price the various components of electricity service separately. For example, a consumer's bill might have separate components for electricity, transmission, distribution, efficiency services, and various ancillary products. Typically, current electricity rates are bundled--all of the components are included in a total price for delivered electricity without the separate components being identified.

Universal Service: Electric service sufficient for basic needs (an evolving bundle of basic services) available to virtually all members of the population regardless of income. See Obligation to Serve.

Vehicle Miles Traveled: The miles of travel by vehicles on roads and highways.

Vertical Integration: An arrangement in which the same company owns all the different aspects of making, selling, and delivering a product or service. In the electric industry, it refers to the historically common arrangement in which a utility owned its own generating plants, transmission system, and distribution lines to provide all aspects of electric service. See unbundling.

Washington Public Utility District Association (WaPUD): Founded in 1936, the Washington PUD Association serves PUDs operating electric, sewer and water utility systems in Washington. The Association coordinates action on matters of mutual interest and benefit to its members primarily in the legislative arena. It provides testimony to state and congressional committees and compiles and distributes information on its member districts. Contact Stephen Johnson; 206-682-3110. ant Tanner; 503-241-2300.

Washington Rural Electric Cooperative Association: The Washington Rural Electric Cooperative Association is an organization formed to consider issues and goals common to electric cooperatives in Washington. The association, composed of eight cooperatives, is active on such issues as state taxes, energy conservation and utility laws, and participates in state legislative matters. Contact Aaron Jones; 360-357-6048.

Western Interstate Energy Board (WIEB): WIEB is an agency of western state governments and is the administrative unit for the Western Interstate Nuclear Compact. The purpose of the Board is to foster cooperative efforts among the member states and the federal government in the energy field, "to enhance the economy of the West and contribute to the individual and community well-being of the region's people." The Board consists of a state representative appointed by the governor of each member state. States eligible to participate in the Board are: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oregon, South Dakota, Utah, Washington, and Wyoming. The provinces of British Columbia, Alberta, and Saskatchewan are associate members of the Board. Contact Douglas Larson; 303-573-8910.

Western Regional Transmission Association (WRTA): A voluntary association of transmission owners, transmission-dependent utilities, power marketers and regulatory agencies throughout the western United

States. The chief functions of WRTA are to develop pricing policies, provide for reciprocal access to transmission of its members, coordinate planning, and resolve disputes. The functions of WRTA are very similar to those of NRTA (see above) but encompass a wider geographic area. Contact Jim Byrne; 801-583-3155.

Western Systems Coordinating Council (WSCC): WSCC is in international organization that promotes electric system reliability. WSCC was formed in 1967 and is the most diverse and largest of the nine regional electric reliability councils that comprise the North American Electric Reliability Council (NERC). The council provides the forum for its members to enhance communication, coordination, and cooperation for planning and operating a reliable interconnected electric system. Membership is voluntary and open to major transmission utilities, transmission dependent utilities, and independent power producers/marketers. Affiliate membership is available for power brokers, environmental organizations, state and federal regulatory agencies, and any organization having an interest in the reliability of interconnected system operation or coordinated planning. Contact Dennis Eyre; 801-582-0353.

Wheeling: The transmission of electricity by an entity that does not own or directly use the power it is transmitting. Wholesale wheeling is used to indicate bulk transactions in the wholesale market, whereas retail wheeling allows power producers direct access to retail customers. This term is often used colloquially as meaning transmission.

Wholesale Competition: A system in which a distributor of power would have the option to buy its power from a variety of power producers, and the power producers would be able to compete to sell their power to a variety of distribution companies.

Wholesale Power Market: The purchase and sale of electricity from generators to resellers (who sell to retail customers) along with the ancillary services needed to maintain reliability and power quality at the transmission level.

---

[1] This glossary is partially based on a glossary assembled by the Rhode Island Governor's Policy Office and the National Council on Competition and the Electric Industry, the Northwest Power Planning Council's Directory of Organizations, and the glossary included in the September 10, 1996 draft of the Comprehensive Review.

Appendix G:
Energy Service Area Directory

Energy Policy Group
P.O. Box 43173
Olympia WA 98504-3173

The CTED Energy Policy Group provides the Governor, Legislature, and other state and local government entities with information, analysis, and expert testimony to facilitate the inclusion of public interest criteria into state, regional, and national energy policy; develops, collects, and analyzes data on energy resources; develops and represents the state's energy interests in external policy forums; prepares the state to respond to petroleum and electricity supply shortages; and manages federal energy grants.

Name and Title

Deborah Ross, Senior Energy Policy Specialist
Elizabeth Klumpp, Energy Policy Specialist
Julie Palakovich, Energy Policy Specialist
Arne Olson, Energy Policy Specialist/Economist
Cory Plantenberg, Energy Program Manager
Karen Dunn, Executive Assistant

Subject Area	Contact Name
Administrative Issues	Karen Dunn
Bonneville Power Administration	Deb Ross
Electric and Natural Gas Utility Planning	Deb Ross, Elizabeth Klumpp
Electric Industry Restructuring	Deb Ross, Elizabeth Klumpp
Energy Data and Economics	Arne Olson
Energy Efficiency and Market Transformation	Elizabeth Klumpp
Energy Emergencies and Contingency Planning	Julie Palakovich
Energy Strategy	Julie Palakovich
Federal Grants and Contracts, Petroleum Violation Escrow Funds	Cory Plantenberg
General Information	Karen Dunn
Natural Gas Supply	Arne Olson, Elizabeth Klumpp
Northwest Regional Issues	Deb Ross
Petroleum	Arne Olson
Publications, Reports	Karen Dunn
Regulation	Deb Ross
Renewable Resources	Elizabeth Klumpp
Transmission	Deb Ross, Arne Olson

Energy Facility Site Evaluation Council
P.O. Box 43172
Olympia WA 98504-3172

The CTED Energy Service Area also provides administrative and staff support for the Energy Facility Site Evaluation Council sites major energy facilities important for the continued expansion of the state's economy, while ensuring that the rights of citizens and the state's environment and safety interests are appropriately protected.

Name and Title

Jason Zeller, Unit Manager
Joleen Karl, Administrative Assistant
Fred Adair, Council Chair
Allen Fiksdal, Project Manager
Mike Mills, Compliance Manager
Sarah Blocki, Law Clerk

Subject Area	Contact Name
Administrative Issues	Joleen Karl
Cross Cascades Pipeline	Sarah Blocki, Allen Fiksdal
Emergency Preparedness	Mike Mills, Jason Zeller
Environmental Protection	Mike Mills, Jason Zeller
General Information	Joleen Karl
Growth Management/Council Projects	Jason Zeller
Land Use Consistency/Council Projects	Allen Fiksdal, Jason Zeller
Nuclear Safety	Jason Zeller, Fred Adair, Mike Mills
Public Involvement	Allen Fiksdal, Jason Zeller
Publications, Reports	Joleen Karl
Siting Process	Allen Fiksdal, Jason Zeller
Siting Requirements	Allen Fiksdal, Jason Zeller
State Environmental Policy Act	Allen Fiksdal, Jason Zeller
Transmission Lines/Bonneville Power Administration	Allen Fiksdal, Jason Zeller
Water/Air Pollution Permits	Allen Fiksdal, Mike Mills, Jason Zeller